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ABSTRACT

Addressing the issues surrounding the relationship between higher education and the development of a new international economic order, the 11 articles collected here provide an introductory analysis of the current relationship between higher education and the world economy, analyze the differing needs of developing and developed countries, and provide two case studies of economic factors in educational policy. Articles by Malcolm Adiseshiah, Theodore Schultz, Jan Tinbergen, Bogdan Suchodolski, and Rafael Salas identify the current shortcomings of higher education and show its role in development, its agenda for future planning, its impact on culture, and its responsibility for mass education. In urging developing countries to find their own paths toward a new international order, Edmundo Fuenzalida, Samir Amin, and Pablo Latapi argue that the aims of developed countries weigh too heavily in world higher education and that an educational structure that advances the self-reliance of developing countries is possible. Jean-Louis Reiffers focuses on the conflict of values inherent in French higher education's fostering of both competition and cooperation in international productivity. Mohamed Moursi Ahmed and Mohamed Hamdy El-Nashar concentrate on the role of higher education in building a new international order in Arab states. An appendix contains the United Nations declaration (May 1, 1974) that outlined the goals of the establishment of a new international economic order. (JW)

International Institute for Educational Planning

HIGHER EDUCATION AND THE NEW INTERNATIONAL ORDER

A COLLECTION OF PAPERS

Edited by
Bikas C. Sanyal

With Contributions from
Malcolm Adiseshiah
Theodore Schultz
Jan Tinbergen
Bogdan Suchodolski
Rafael Salas
Edmundo Fuenzalida
Samir Amin
Pablo Latapi
Jean-Louis Reiffers
Mohamed Moursi Ahmed
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Preface

The various resolutions adopted by the United Nations on a New International Economic Order, or NIEO (including the Charter of the Rights and Duties of States) make few references to education; it will also be noted that the word 'social' is missing whereas for the last 20 years United Nations vocabulary has consistently linked 'social' aspects with 'economic' ones in order to stress the complementary character and the interdependence of these two dimensions of development.

We may take the view that the texts relating to the NIEO state the principal aims of a strategy for the United Nations community, leaving it up to each institution within the United Nations family to draw the appropriate consequences within the framework of their respective programmes. Namely, Unesco has adopted as its central theme for its Medium-term Plan for 1977–83 the contribution which each of the organization's activities (educational, scientific, cultural and in the sphere of communication) can make to the establishment of a NIEO.

The present book is a contribution of the International Institute for Educational Planning to Unesco's programme for activities in this area. Coming from different continents of the world with different approaches and conceptual frameworks, the authors have put forward their own viewpoints on how the system of higher education in a country could contribute to the establishment of a NIEO. All of these distinguished contributors have experience in both developing and developed countries and the conclusions they draw will, it is hoped, give new insights for the development of higher education in the different countries.

We are grateful to the authors for their contributions to this important subject.

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Michel Debeauvais
February 1982 Director, IIEP

Bundes Ministerium Z

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The authors are responsible for the choice and the presentation of the facts contained in this book and for the opinions expressed therein, which are not necessarily those of the Institute and do not engage the responsibility of Unesco.

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I Introduction

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1 The New International Economic Order: What Does it Mean?

The New International Economic Order (NIEO), according to the Declaration[1] of the United Nations Assembly on 1 May 1974, is to be established in order to promote the economic and social development of all citizens of the world based on equity, interdependence, common interest and co-operation among all countries. This order is destined to reduce the widening gap between the developed and developing countries, to redress inequalities among peoples, and to ensure development, peace and justice for all, both now and for future generations.

The last three decades after World War II have seen the independence of most countries from colonial domination. Political independence does not however mean economic, social and cultural independence. Seventy per cent of the world's population exist on only thirty per cent of the world's income. The present international economic system has proved to be incapable of redressing this gap in economic well-being, and the economic systems of the developing countries are too much dependent on those of the industrialized world. Participation of the developing countries in the formulation and application of decisions concerning the international community, especially in economic areas, has not been full nor equal in the past. It has only been in the 1970s that the world has seen increasing political participation of the developing countries in international forums, which has led to better understanding and appreciation of the need for interdependence between the developed and developing countries, especially as much of the world's natural resources and raw materials are situated in the developing world whereas the developed countries have the technological know-how.

In the NIEO Declaration, it has been emphasized among other factors that:

(i) full and effective participation of all countries in solving the world's economic problems is to be ensured;
(ii) every country must have complete possession of its natural resources and the means to exploit these resources;
(iii) the activities of transnational corporations are to be supervised and regulated by each country according to its own economic interests;

(iv) equitable and just terms of trade for import and export of raw materials, primary commodities, manufactured capital goods and equipment between the developed and developing countries are to replace the present unsatisfactory terms;

(v) the developing countries must have access to the achievements of modern science and technology, have to be assisted in creating indigenous technology suited to their own economies and in reducing wastage of natural resources, especially food products, and in utilizing all the resources for the cause of development.

The achievement of these goals is supposed to create better economic conditions for all nations of the world.

2 Different Perceptions of the Co-operation between Developed and Developing Countries

The prospects of co-operation between the developing and developed countries to achieve this new order have been critically evaluated elsewhere[2] through an analysis of shifts in perception of the existing international economic order, which have occurred in the minds of influential policy-makers in developing countries and have varied from 'benign neglect' to 'malign neglect' on the one hand, and from 'benign intent' to 'malign intent' on the other.

The linkage between developing and developed countries is perceived among others through trade, aid, investment and migration. The phenomenon of 'benign neglect' claims that while multinational corporations invest in developing countries to make profits, the incomes of these countries increase, technology becomes diffused and domestic savings are harnessed. It is also believed that the principle of division of labour will be reflected in the exchange of commodities and services in trade so as to bring profits from trade; whereas, migration of skilled labour instead of creating harmful 'brain drain' will help remove barriers to progress, namely inadequate remuneration for the educated élite.

The 'malign neglect' phenomenon considers the existing links between rich and poor countries as harmful to the latter. This idea suggests that multinational corporations disrupt salary structures of a country by providing some high income jobs. International trade leads to the perpetuation of the role of the developing countries as producers of primary products and raw materials, providing them with a secondary and inferior position in the international division of labour and that the terms of trade as they stand at present will increasingly favour the developed countries at the cost of the developing countries. The 'brain drain' deprives the developing countries of scarce skills and the talents that may contribute to their economic development. A liking for western standards of living makes the society more consumer-oriented and domestic savings becomes difficult.

The 'benign intent' school of thought considers on the contrary that private investment is motivated by the intention and goodwill to spread the benefits of development, modern technology and enterprise to the developing countries; the foreign-aid programmes are merely humanitarian with the enlightened objective of sharing the world's resources with the developing countries.

The 'malign intent' point of view asserts that foreign aid is a natural extension of the imperialist designs on the poor nations aimed at creating and perpetuating their dependence on the rich countries and promoting neo-colonialism.

It is believed that none of the above phenomena can exactly capture the actual effects of the old linkage between developed and developing countries. However, the indications are that if the existing international economic order continues, the economic conditions of the developing countries will not improve but deteriorate. This is why the United Nations adopted the Declaration on the establishment of a New International Economic Order which would ameliorate the economic and social conditions of the developing countries.

3 Unesco and the New International Order

It has been argued that the term 'new international economic order' should signify a phenomenon that would go beyond the establishment of a regulatory machinery for international trade or for reconciling interests of developing and developed countries and should have a sound basis on a critical diagnosis and evaluation of the existing society. In 1974, the General Conference of Unesco also adopted a Resolution emphasizing the socio-cultural factors in the international development strategy and broadened the scope of the new order. It stated that:

> the establishment of a new international economic order depends not only on political and economic factors, but also on socio-cultural factors, the role of which in development is constantly growing and which are crucial in the struggle of peoples against all forms of domination.[3]

In 1975, the Director-General of Unesco set up a Panel of Counsellors to analyse the major world problems and to advise on the contribution which Unesco might make towards solving them. Although the terms of reference of this Panel did not include explicitly and specifically the implications of this new economic and social order, most of its deliberations were directed towards the means of achieving such an order. The Panel took a critical look at the world's rapidly changing economic, social and political situation and identified a list of crucial problems facing the world today. This included the problem of rapid industrialization and the distortion it has caused in the distribution of benefits among people, the abuse of scientific and technological development for the destruction of mankind in spite of the benefits this development has brought, the limits to material development, environmental pollution, etc. The Panel went into detail in respect of the role of science and technology in the development process. It had been recommended that the special conditions of development and the specific nature of the socio-economic and cultural characteristics of the developing countries be given special attention for science and technology to have any useful and practical application. Local environment should give the basis for scientific research: traditional customs should be analysed for their usefulness in scientific research. An infrastructure of science should be established in each developing country to promote fundamental and developmental research related to local environment, problems and resources. As noted by Unesco:

> Science is a product of history and of society, and it owes as much to the social environment as to the work of scientists. It is only by taking these mutual interactions into account that we can learn to define new strategies and priorities which are just as valid for social progress as for world scientific progress.[4]

It has been argued that the concept of science based on an analysis of the interaction between science and society would encourage developing countries to work out their own scientific and technological development strategy. In the application of science, it is necessary to analyse global problems on a long-term basis related to human needs and world resources. The Unesco Panel also recognized the importance of 'culture' as the source of any society's dynamic force and recommended achievement of an equilibrium between science and culture 'matched by an equilibrium in mutual efforts at comprehension, and by incessant adjustments between what different cultures have to learn from one another'.

In respect of education, the Panel asserts that 'no educational body can properly transmit what it knows unless it is sufficiently familiar with those to whom it is addressing itself'. The role of education in the establishment of scientific communities, promoting human rights and creating attitudes favourable to the building of peace cannot be questioned. The Panel also suggested that Unesco should attempt to ensure that the new international economic order be translated into a new international social or human order, which should in turn ensure social justice. This would mean that the economic premises be part of a broader basis where search for evolution of societies and principles and criteria to govern people's choices and actions be constantly maintained and this is where Unesco should take an active role in achieving this new international order.

Again, as has been mentioned above, the United Nations Declaration relates mostly to economic aspects involving international relations only – an area whose importance to many developing countries is not of very high magnitude and such relations also vary from country to country. It has been argued that a global view of the inter-country relations should be a prerequisite to any attempt at solving the different problems and the world must be treated as 'a totality or a system whose parts are organically linked'. Unesco has the task of stressing the global nature of the problems. It has also been argued that the major world problems existing or foreseen should be identified so that the challenges of the future in the area of education, population, environment, scientific culture and employment may be met through the establishment of the new international order.

Terminologically, the word 'order' should indeed extend its sense from an organizational system or a legal structure to a system of values agreed upon by all peoples of the world:

> a desire to live together, actually experienced, not simply as a necessity for survival or co-existence, but as the deliberate choice of fashioning a common destiny together with joint responsibility for the future of the human race.[5]

That Unesco in general and its educational activities in particular have an important role in instilling that desire is clear from the following statement:

> At the present time, mankind is divided into an affluent minority in whom knowledge and power are vested, and the multitude of peoples aspiring after change; it is prey to many military conflicts, localized but presenting dangers for everyone. It tends to solve all problems by trial of strength; and does not yet clearly distinguish the threats hanging over the future. In such circumstances, the consciousness of the world's solidarity, which is so much needed, can only be the fruit of an active and continuous process of education, which must be put in hand without delay and to which Unesco must make its full contribution.[6]

According to Unesco, the following steps are to be taken in order to establish the new international economic order in its broader sense:

1 Acceptance of a genuine commitment to a new form of international co-operation.
2 Arrangements for setting up, on an international scale, a structure able to promote the establishment of a new international economic order.
3 Integration of the changes to be made, at international and national level.
4 Promotion of co-operation between the developing countries.
5 Special concerns for the needs of the poorer countries.
6 Instigation of participation by all.
7 Provision for transitions (e.g. timetables, agendas, the means of implementation of programmes on a judicious co-ordination of short-term and long-term objectives should be set up based on negotiations and discussions between developed and developing countries).

The potential contribution of Unesco to implementing the above has been elaborated upon later. It has been stated that:

> Unesco's tasks in particular will be: to contribute to the laying of the scientific and technological foundations which will enable every country to make better use of its natural resources; to broaden the scope of education and direct its course so that the people of each country will be better fitted to see to their own development; to develop communications and information systems; and through the development of the social sciences, to stimulate self-examination in every society in order to help it to derive the greatest advantage from the instruments of change, whilst not losing its own identity.[7]

These are the areas which are closer to the subject of this study.

In its Medium-term Plan (1977-82), approved at the Nineteenth General Conference, Unesco has developed a set of programmes with a new concept of development where 'man is the centre of development'. The following objectives are behind this set of programmes:

1. Promotion of the formulation of a global, multidisciplinary interpretation of development, having regard to the interrelations between the various factors contributing to this and which are, in return, affected by it.
2. Studies of socio-cultural conditions, systems of values, motivations and procedures for participation by the population likely to foster endogenous, diversified development processes in keeping with the practical conditions and needs of the different societies.
3. Contribution to the development of infrastructures and programmes in the social sciences with a view to increasing the different societies' ability to find ways of solving social and human problems.
4. Development and application of tools and methods of socio-economic analysis and development planning.
5. Promotion of wider participation in cultural life and encouragement of endogenous cultural activities.
6. Stimulation of artistic and intellectual creativity.[8]

The programmes to set up the scientific and technological foundations in the different countries have the following objectives:

1. Investigation of interactions between science, technology and society, as well as of the implications of scientific and technological change for man, within the context of the long-term development of science and technology in line with social progress and changing ways of life.
2. Promotion of the formulation and application of policies and improvement of planning and financing in the fields of science and technology.
3. Development of scientific and technological research and training and promotion of international and regional co-operation in the field of science and technology with a view to increasing the endogenous capabilities for scientific and technological creation making it possible, in particular, to work out appropriate technologies or to adapt existing technologies.

4. Development of a better understanding of the nature of science and technology and of their role in a changing society, by improving and extending their teaching in school and out-of-school education, and by promoting public information in these fields.
5. Development of understanding of the processes governing the evolution of the earth's crust, particularly with regard to the origin, extent and rational use of the earth's mineral and energy resources.
6. Improvement of knowledge of terrestrial biological resources and interrelationships between human activities and terrestrial ecosystems.
7. Improvement of knowledge concerning water resources and development of the scientific basis for understanding interrelationships between human activities and the hydrological system and for developing the rational management of water resources.
8. Development of the scientific basis for understanding and improving interrelationships between man and natural marine systems, oceanic and coastal.
9. Improvement of knowledge concerning the ecological, social, moral and cultural implications of the interrelationships between man and his environment and quest for a 'better design for living' in human settlements.
10. Promotion of the preservation and presentation of the cultural and natural heritage of mankind.
11. Contribution through general education and through public information to the improvement of individual and collective behaviour towards the human environment and to the perception of its quality.[9]

and those to develop the educational foundation have the following objectives:

1. Promotion of the formulation and application of policies and improvement of planning in the field of education.
2. Improvement of educational administration and management.
3. Contribution to the establishment of comprehensive, diversified and flexible educational structures.
4. Improvement of educational content, methods and techniques.
5. Promotion of the training of educational personnel.
6. Promotion and intensification of adult education.
7. Promotion of the role of higher education in society.
8. Intensification of the struggle against literacy.
9. Extension of Unesco's contribution to integrated rural development.
10. Promotion of participation by women in economic, social and cultural development.
11. Development of the role of youth in educational, social and cultural activity.

12. Contribution to the working out of concerted approaches to the problems of social disharmony.[10]

It would appear from the above list of objectives that emphasis is being laid on the role of education, including scientific and technological education, in the social and economic development of each country. With the limited resources available, Unesco has developed a set of programmes for the early 1980s related to each of the above objectives with the principal aim of establishing a new international order, not only in economic terms but in social and cultural terms as well. The role of higher education in these objectives cannot be overemphasized. Higher education has to play an important role in the formulation of a global, multi-disciplinary interpretation of development, having regard to the inter-relations among the various factors. Studies on socio-cultural conditions, systems of values, etc., can only be undertaken at the higher education level. Programmes for development of scientific and technological research also fall within the domain of higher education. A weak higher education system cannot respond to the needs of the society in the above spheres, nor can it help in setting up and developing socially useful educational programmes at the lower levels. Any weakness in the higher level easily creeps into the lower levels and leads to the weakening of the whole education system. In the system of higher education, the university plays an important role in each country and has an important role to play also in the establishment of the new international order; however, it should first change its 'ivory tower' image.

As stated by the Director-General of Unesco, Mr Amadou-Mahtar M'Bow:

> The Organization (Unesco) has . . . come to recognize the key role of the University, for it is the one place above all others where students, researchers and teachers from a wide variety of backgrounds can, together, work to fulfill an entire nation's hopes for the future. It provides, therefore, the opportunity for combining training and research, study and production, tradition and progress, attachment to one's identity and responsiveness to the world, in the work of pursuing the objectives of the community. It is, too, a place where the acquisition of knowledge and know-how can go hand-in-hand with the steady advance of the spirit of invention so that it may respond more and more faithfully to aspirations that are a reflection at one and the same time of the need for authenticity and of the desire for change.
>
> But the University can only hold out such prospects as these to the extent that, breaking with the kind of élitist attitude that often isolates it, it succeeds in finding its roots in the people, in making their pre-occupations its own and in discovering in their sources of concern the underlying incentive for its action – in other words, to the extent that the University becomes part and parcel of the nation as a whole. Only then can it draw on the knowledge that mankind has accumulated over the centuries and enriched, day by

day, with the very latest scientific discoveries, while adding to that knowledge the further dimension afforded by the culture, traditions and experience that are peculiar to each nation. Only then can it make an effective contribution to the solution of the practical, everyday problems which the vast majority of the inhabitants of developing countries are as yet powerless to tackle.[11]

In its programme for the Medium-term Plan, in order to achieve the above objectives, the Division of Higher Education of Unesco adopted four principles of action:

1. In the context of playing a significant role in the social, economic and cultural activities of every country, higher education should give priority to endogenous national development. The approach adopted should consider the entire range of problems facing the countries in each specific situation.
2. Elitism should be avoided in the provision of higher education programmes and equitable distribution should be achieved.
3. National policies rather than individual options should determine mobility of those who enter higher education. Re-integration of the educated returning from abroad in the economic and social life of the home country should be emphasized.
4. Inter-institutional co-operation should be designed to bridge the gap among countries at different stages of development in the areas of scientific and cultural activities, technical manpower and human resources.

4 The Role of Higher Education in Establishing the New International Order; The Issues and Possible Answers

As a part of the activities in its Medium-term Plan in the field of higher education, the International Institute for Educational Planning decided to look into areas in which higher education could contribute to the establishment of the new international order, as defined above. Questions had been raised concerning the validity and effectiveness of the system of higher education in even solving the national problems of many countries. Rapid expansion of higher education in the post-war decades has created as many problems as it has solved. It has been alleged that the institutions of higher education have remained unconcerned about the need for a new international economic order; inequalities have been perpetuated in respect of sex, religion and social class. New forms of access to and structural changes in the higher education systems are subjects for serious consideration. There is also the question of the relevance of the content of education to fit into the changing needs of the society. Most of the institutes of higher education had been built on the basis of models imported from abroad and without much adaptation in respect of the particular country's socio-economic and cultural needs and potential. They are proving to be increasingly unworthy of the social system in which they are located. The capability of these institutions to address themselves to such national issues as distribution of resources, income and wealth-producing assets, to food availabilities, to provide employment, to the choice of technology, to provide basic needs and to tackle population problems, to address new moral and cultural issues in the face of industrialization is being questioned. Also being raised is the question of their capabilities in addressing such international issues as: development in terms of the new international economic order, including the issue of a country's capacity to compete on relatively equal terms with other countries, and its participation in the control and direction of the world system.

The issue of the new international order calls for the task of identifying the relationship between a country's development and its investments in human capital. It also calls for identifying the factors that impede development and the gap between expectations and achievements especially in the area of higher education. It is also important to identify the different internal consequences of the import of science and technology, of the relationship between institutions of higher education and the respective government, of the trade-off between equity and efficiency. Such consequences are argued to be different for different countries: developed and developing, socialist and non-socialist.

The implications of the new international economic order for the planners of higher education in defining:

(i) their countries' own industrial structure;
(ii) the sectoral structure of the economy: existing and potential;
(iii) the demand for third-level manpower; and
(iv) in identifying and adapting sources of available statistics to the development of additional information

are to be assessed as well.

It has been mentioned above that the economic order cannot prevail in isolation; it has to be integrated with the social and cultural order. Those aspects of production, consumption and distribution of goods and services that have traditionally reflected the economic order will undergo changes. What will be the nature of these changes? What implications will they have on the cultural aspects of life? What role will higher education have in establishing this cultural order which will sustain the economic order based on a system of values rather than an organizational framework or a legal order?

How is the establishment of a new international economic order handicapped by the problems of migration between developed and developing countries, between urban and rural areas, by the inequity between the two sexes? What role could popular education play in contributing to establishing this new order?

How to control the subordination of higher education and scientific research in developing countries to the aims of the developed countries in the process of establishing the new international economic order? How to safeguard against unduly infiltrating the development values of the developed countries into the value system of the developing countries? How to avoid the pitfalls of redeployment and tendency towards 'westernization' easily interpreted in the new order? How to minimize the role of higher education in social reproduction which perpetuates social disparity and what would be the relative advantage of promoting 'creative' capabilities rather than simply transferring technologies? How to overcome the dependence of the LDCs on developed countries? How could interdependence with other LDCs be fostered through the higher education system? Finally, how could a specific developed country and a specific developing region re-organize their higher education programmes so as to assist in the establishment of the new order?

These are only some of the questions that are discussed in this book. There are many other issues that have been left out, not because they are unimportant but they should be dealt with separately. These relate for example to the energy crisis and its implications for higher education, the issue of agricultural production and the access of women to higher education. Whenever these issues had some pertinence to those discussed in the book, some analysis of them has been given, but they deserve more detailed attention.

Those issues and questions that have been discussed can be grouped into three broad areas: firstly, those which relate to wide-ranging problem areas and give an overview of the situation as well as providing an introductory analysis of the situation; second, those which describe the economic and educational situation and differentiate the implications of the new international order for developing and developed countries. The third broad area covers the implications of the new international order for the system of higher education in a developed country and a developing region.

Of the chapters in this collection, the following deal with the first broad area relating to wide-ranging problem areas and provide an introductory analysis of the situation:

The chapter by Malcolm Adiseshiah deals with the implications of the new international order for higher education, identifies the shortcomings of the present system of higher education in respect of its structure and content and suggests measures to rectify these shortcomings. Theodore W. Schultz identifies the relationship between a country's development and its investment in health and education in the light of the new international order. He suggests that the relationship between expectations and possible achievements in the area of higher education often indicates a given country's role in the new international economic order, and concludes that the impact of higher education in respect of the NIEO is different for different types of countries. In his chapter, Jan Tinbergen discusses the implications of the new international order for planners of higher education, especially in defining their countries' own industrial and economic structure, estimating the demand for high-level manpower and identifying the information gaps. In order to achieve the new international order, he emphasizes the need for integrating socio-economic policies with educational policies in each country, as well as stronger co-operation amongst the third world countries in the field of higher education. Bogdan Suchodolski foresees the evolution of the new international order in its increasing relation with a new cultural order. Development of higher education should not only be contingent upon economic development to achieve the new international order but should promote the development of culture in view of the fact that the role of science and technology, the life-style and the very sense and value of life will undergo changes in the future. In his chapter, Rafael M. Salas concretizes this aspect in one particular direction, namely changes in attitude that could occur among people through a programme of population education which, in his view, must become an integral part in the evolution of the new international order.

The next three chapters deal in more detail with the differences in the implications of the new international order for developing and developed countries, as also indicated by Theodore Schultz. They also identify areas in which the developing countries in the process of establishing the new international order should be careful about depending upon the developed countries, and they suggest measures for the institutions of higher education to take to assist in the establishment of this order: Edmundo F. Fuenzalida discusses the problems that inhibit the full participation of developing countries in the establishment of the new international order. He specifies the problem of subordination of higher education and scientific research to the aims of the developed countries and suggests measures to change this undesirable situation. In his chapter, Samir Amin also supports this view and warns the developing countries to be aware of the pitfalls and possible 'westernization' of the social system as a result of an incorrect interpretation of the new international order. He questions the role of education in the traditional sense in real development of a country and socialization of its people, and suggests measures to restructure education so as to assist in the achievement of self-reliance and promotion of creative capabilities. Pablo Latapi also warns the developing countries about the perpetuation of the status quo if the institutions of higher education are not reformed. He is however optimistic that the universities of developing countries are capable of attaining self-reliance through interdependence amongst themselves.

The last two chapters come up with two specific situations. The first, by Jean-Louis Reiffers, takes the issues of the international division of labour and the French economy to identify the distortion of the French higher education system in the conflicting situation of two sets of values: one of international competitiveness leading to higher productivity, the other contradicting this attitude. Through its technical co-operation with developing countries, France transmits simultaneously the two sets of values without being aware of their consequences on these countries, but having implications for the new international order. The second chapter, by Mohamed Moursi Ahmed and Mohamed Hamdy El-Nashar, takes up the issue of the new international order and its implications for higher education in the Arab States, and identifies measures to make higher education more responsive to the new order.

The authors who have contributed to this book come from different continents of the world and have wide experience in the field of economics and education, both in the developing and developed countries. The lessons that are drawn from their analyses could be useful to the decision-makers and planners of higher education in the developing and developed countries. The arguments that they put forward also demonstrate that higher education has a definite role to play in the establishment of the new international order.

5 References

1 See Appendix I for text of the Declaration.
2 Bhagwati, J. N., *The New International Economic Order: the North-South Debate*, Cambridge, Mass., MIT Press, 1977.
3 18C/Resolution 12.11.
4 Unesco, *Moving Towards Change: Some Thoughts on the New International Economic Order*, Paris, 1976, p. 112.
5 Ibid., p. 26.
6 Ibid., p. 23.
7 Ibid., p. 85.
8 *Unesco Medium-term Plan (1977-1982)*, 19C/4, Resolution 100, C.III, Paris, 1977.
9 Ibid., C.IV and VII.
10 Ibid., C.V and VI.
11 Address by Mr Amadou-Mahtar M'Bow, Director-General of Unesco, on the occasion of being presented with the degree of Doctor Honoris Causa of the University of Sierra Leone, Freetown, 20 December 1980.

II Access, Relevance and Employment Relation and Higher Education Dimensions of the New International Economic Order

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Abstract A turn-around is suggested in the system of higher education from the morass of non-involvement, inequality and irrelevance in which the developing countries are placed and address themselves, as they are beginning to do, to the internal questions of access, relevance, employment relation, social equity and international justice. In respect of access, it is suggested that this should be open with an initial system of reservation of places for a certain percentage of students and teachers from the weaker and deprived sections of the society and should be tied to innovative methods of imparting higher education. As far as relevance is concerned, the universities and the institutions of higher education should develop interdisciplinary structures to meet the new demands alongside the disciplinary framework to understand and increase the basic knowledge-base. Several methods for this problem-oriented structure are suggested. In respect of employment, educational programmes have to be integrated with work experience through such methods as participation in community activities, agricultural activities and industrial occupations as integrated parts of the educational programmes. Emphasis should be put on applied research and on the role of higher education in achieving equity and social justice, in particular the contribution it can make to establishing the new international order. Co-operation among institutions of higher education in developing countries as well as between those of developing and developed countries should be institutionalized with the objectives of establishing the New International Economic Order.

1 The New International Economic Order

The New International Economic Order (NIEO) declared by the United Nations in May 1974 extends into the international arena the insight and experience of many countries at the national level. These countries have found that the unregulated operation of market and economic forces results in dividing society into an affluent minority and a poor majority. This ensures that the rich minority become richer at a faster rate than the poor majority become less poor. Within each country the market and economic forces need to be regulated because they function within a structure where all or most of the productive assets in land and industrial capital are owned by that same rich minority and a politico-technical system where all decision making is concentrated in its hands. The market and economic forces in the world economy function within a similar system. The NIEO Declaration terms these phenomena 'the remaining vestiges of alien and colonial domination, foreign occupation, racial discrimination, apartheid and neo colonialism in all its forms', which result in 'the developing countries which constitute 70 per cent of the world's population account for only 30 per cent of the world's income' and 'the gap between the developed and developing countries continues to widen'.

To regulate the operation of the economic and market forces in the existing international economic order and to replace that order by a New Order

> based on equity, sovereign equality, interdependence, common interest and cooperation among all states . . . which shall correct inequalities and redress existing injustice, make it possible to eliminate the widening gap between the developed and developing countries and ensure steadily accelerating economic and social development and peace and justice for present and future generations,

the United Nations resolutions in its Declaration lays down a set of seven comprehensive principles and in its Programme of Action a set of twelve detailed guidelines.

What is the contribution that higher education in the developing countries can make, or should make to this New Order? We discuss some aspects of this question below.

1.1 *Awareness*

The institutions of higher education in the developing countries are neither aware of nor seem concerned with the challenge and call of the New International Economic Order (NIEO). This may in part be due to their preoccupation with establishing themselves as adequate and viable institutions while the demand for admissions is mounting and their rate of expansion is slowing. Between 1960 and 1965 enrolment in higher education institutions in developing countries rose by an annual average of 10.6 per cent, while between 1965 and 1974 it slowed to 9.3 per cent. The same slow down is noticed in developed countries, where the annual average increase between the two periods slowed even more sharply from 9.2 per cent to 5.3 per cent. The gap between the two groups of countries, however, continues to be wide – higher education enrolment in 1974 in developing countries is 8.4 millions, and that in developed countries (with, as noted earlier, less than 30 per cent of world population) is 24.8 millions.[1] There is no easy or short-term solution for the development of higher education in the developing countries. Their public expenditures on education are high at 3.9 per cent of their Gross National Product (GNP) (15.1 per cent annually between 1965 and 1974); about one tenth of total expenditures in developed countries is on higher education.[2] Except for some of the oil-exporting countries, the trend of expenditures in the developing countries since the 1970s has been to increase the rate of expenditure on primary education and slow down that on higher education.[3] Thus, there is little leeway for higher educational institutions in the developing countries to catch up with either their own development needs or the standards set by those of developing countries.

These are objective, quantitative factors which explain some of the passivity of the higher education institutions in the developing countries *vis-à-vis* the NIEO. There are, however, somewhat more disturbing reasons for this stance of uninvolvement. As against the equity and equality objective of the NIEO, higher education in developing countries is, as presently structured, a purveyor of inequality within the educational system and a promoter of injustice in the broader societal framework. This statement of the involvement of higher education institutions in a system of inequality and injustice detracts, for the present, from the question of causal relationships (i.e., to what extent do these institutions mirror exogenous conditions of inequality? To what extent are they active contributors if not originating causes of societal injustices?) Their involvement in inequalities, however, provides the other explanation for their not participating in the drive for the NIEO for equity and equality.

1.2 *Systems inequality*

Within the higher education system, the institutions express inequalities in a multifaceted manner – spatially, in terms of sex, intergenerationally, and in terms of class.

All institutions of higher education – including some agricultural universities – are located in urban enclaves in the developing countries creating a spatial inequality between urban and rural areas. Their relation, if any, with the rural countryside where the majority of the people live is usually that of a donor – beneficiary one. One country attempted, just before and immediately after its independence to break away from this spatial inequality and develop a truly rural-based educational policy and system (i.e. India under the leadership of M. K. Ghandi and his educational advisors). The history of that short-lived scheme of basic education, basic teacher-training institutions, and rural institutes of higher education poses the question: Is this inequality (in the form of the urban industrial sector bias and non-relation to the major social sector – the rural one) in some way built into systems of higher education?

The inequality in higher education between men and women is amply documented in the annual Unesco statistical yearbooks. The yearbook for 1974 reports that whereas 5.6 million men are enrolled in such institutions, the enrolment of women is 2.7 million (unlike the enrolment in developed countries, which is reported at 13.7 million for men and 10.8 million for women). In the case of teachers, whereas women teachers form an overwhelming majority at the pre-primary and primary stages, their number declines to less than 10 per cent at the higher education stage – in 1974 a total of 510,000 men teachers and 51,000 women teachers in higher education.[4] Here again the question is: Is there something built into education, when left to itself and not directed to the contrary, which creates unequal treatment of girls and women as they ascend the educational ladder?

The intergenerational inequality in higher education and educational policies generally in the developing countries is seen in the absolute priority in educational expenditure given to the education of the youth, and the near absence of any provision for the education of adults. While public expenditures on higher education average 18 per cent of the total educational expenditures of an aggregate $28 billion among the developing countries, their expenditures on adult education is between 0.1 and 0.4 per cent of that total.[5] Here again the question is: Is higher education founded on a premise that education, including higher education, is the monopolistic right of the young, while the education of the not-so-young is the benevolent conceding of a second opportunity to the deprived and deficient? This intergenerational inequality is not only a facet of societal inequality, it is also a reflection of the structural relationship between schooling and work, income earning opportunity and life chances to which reference will be made later.

The most serious and pervasive expression of inequality in higher education is its intra-generational aspect, the bias of the system in favour of students from the richer sections of society as against the vast majority who are from poor families. This bias runs through the entire education system. Sixty per cent of the students who drop out before Class V (the stage at which the permanent tools of learning are acquired), and 80 per cent of those who drop out before the end of the second level are from the poverty sector of society. The system is fashioned to meet the needs and demands of the children of the rich – full-time attendance is required, as is a single point of entry and a sequential chain of progression that cannot be broken. For the poor (i.e. the majority of society who need their children to work in the home, field, farm or factory in order to supplement inadequate parental earnings) no amount of free education, free text books, free mid-day meals and free school uniforms can compensate. Within the educational allocation in every state the highest priority has been given to the development of higher education, with public subsidies of large and varying amounts for this stage of education. Unesco reports that between 1965 and 1974 while primary education allocations increased at 6 per cent per annum and secondary at 8.5 per cent per annum, higher education allocation increased at 11 per cent per annum in the developing countries.[6] The children of the well-to-do minority who are the survivors of the primary and post primary education stages, have somewhat exclusive access to higher education. In one rather large country in Asia, field studies in the early 1970s showed that 80 per cent of high school and college completers are from the income group of the top 20 per cent of society.[7] Thus the completion and/or continuation rates both within each stage of education and from one stage to the next are higher for children from the affluent section of society than those from the majority, poverty sector of society. Here again, higher education policy seems to be reinforcing and directing a system which has a built-in tendency toward inequality.

If the effect of the sources of public financing and heavy subsidizing of higher education in developing countries are added to this, the inequalities worsen. Unlike the industrialized countries where the major source of public revenues is direct taxes, in the Third World countries the major source is indirect taxes. This regressive tax instrument involves transfers from the poor, low income and lower middle income groups who contribute around 80 per cent of the indirect tax revenue to the upper middle and upper income groups. In this sense the sources of educational financing reinforce the unequal distribution of assets, wealth and income levels. In addition, the hidden private costs (including the opportunity costs of education) tend to fall disproportionately on the poor majority of the country.

Between the industrialized and developing countries, all that has been said about intra-educational inequalities at the national level are replicated. In addition, the inequalities in access to higher education represent a much steeper gradient than inequalities based on income levels between countries. The World Bank Atlases for the years 1970 to 1977 show a ratio of 12:13 in the per capita income variations between the top decile of the industrialized countries and the lowest income decile in the developing countries, while the variation in higher education between the two groups of countries indicates a gross unweighted ratio of 300:500.

1.3 *Societal inequality*

Higher education in developing countries is also a purveyor of inequalities in society, which is a further factor holding back their participation in the NIEO.

The content of education at the higher education level reflects the values and interest of the dominant well-to-do social class. The training and skills imparted at this level are those required by or those related to the urban industrial sector. The degrees, diplomas and certificates which are the output of this educational level form the entry qualifications for employment in the organized (industrial urban) sector. This results in a high degree of correlation between future incomes and the completion of one of the many forms of higher education, where, as noted earlier, the large majority of survivors or completers are from the richer sections of society. In this context, educational policies that involve large-scale and (in some cases) priority financing of higher education also become policies for widening the socio-economic gulf between the rich and the poor within the country. The policies do permit some from the poor sections to enter the elite group. Even so, greater specialization and differentiation of the elite group develops, representing a system of meritocracy, and the system accommodates the few newcomers from the poor strata. But nothing is really changed. The traditional wealth and social status criteria are replaced by the new norms of 'educability' and 'educated intelligence', while the traditional and inequitable forms of social selection are maintained intact in the new guise of meritocratic prerogatives conserved and transmitted from one generation to the next.

The other force making for societal inequalities, within the country, of higher education policies is related to the complex and all pervasive education – employment nexus. Educational policies in the developing countries result in an educational system (and its system of exclusion) which acts as a factory for the mass production of the unskilled and semi-skilled labour masses, which the primary and unorganized sectors of the economy need, and as a filter for training and producing the small elite, which the management of the economy and society in general need. It is within this broad and unequal functioning of the nexus that the 1975 Unesco meeting of the senior officials of the least developed countries made the comment, referring to the

> mismatch between our educational strategy aiming mainly at quantitative expansion of the academic streams, and an economic strategy, which until rather recently, focused on the modern sector which cannot absorb most of the academically trained people searching for jobs.

The reference here is to the fact that this broad factory-filter function of the educational system is related neither to the limited labour absorbing capacity of the organized sector (in India of the 260 million labour force, only 24 million are employed in the organized sector, and of the 5 million entering the work force every year, only 450,000 are absorbed in the factory sector), nor to the organized sector's dissociation with the massive unorganized sector (seen in years of agricultural bumper production not being followed by growth in the agro-industrial area). Furthermore the organized sector conditions and is conditioned by its educational linkages in two ways. As a first result, the rural primary and secondary education system (and even more the higher education system) promotes a suction effect on the urban/industrial sector, drawing into its orbit the best and most talented of the rural society, at a time and stage when the application of science and technology to rural development urgently needs these services. Second, the GNP growth that dominates the organized sector ensures that higher education continues to be a closed preserve of completers including those few from the poor sector of society who have survived it with much toil and sacrifice.

At the international level inequalities in higher education make their own contribution to economic inequalities. Even granting that the causal relation of education to income is a rather loose one, international educational inequalities are one of the factors which result in the kind of international division of labour which the 1976 ILO World Conference on Employment, Income

Distribution and Social Progress highlights.[8] A somewhat arresting typology resulting from an analysis of this international inequality profile states:

> An important set of questions can be asked in this connection: Is there an intimate correspondence between economic production and education production? If economic growth is seen in terms of processing, and processing is carried out by means of a division of labour, involving unskilled labour, skilled labour, scientists and other professionals, then will the educational system have to turn out people roughly in the proportions induced by this division of labour? If this is the case, both at the national and international level, does this mean that without basic structural change (the New International Economic Order), we shall end up with the world divided into three types of countries – at the bottom, countries with primary (basic) education doing extraction work and subsistence labour: in the middle, countries, up to the level of secondary (including vocational) education doing some simple processing: and at the third and top level, countries where every body is a university graduate and working in highly research intensive industries with large science and technology components?[9]

Two thoughts arise in connection with this typology. One is that it is not as futuristic as it might suggest. The brain drain from the developing countries, which has been computed monetarily at somewhere between 25 to 50 per cent over and above the financial flow from the industrialized to the developing countries, as a kind of reverse foreign aid, is one expression of the international educational and economic inequalities between the two groups of countries. This reinforces the science and technology competence of the industrially advanced countries, leaving the other group with lower educational and scientific levels of competence to further weaken their already weak international competitiveness. A second thought is that the role of the developing countries in the realization of the objectives of the NIEO depends on the quality of their institutions of higher education and the levels of excellence of their universities. Arresting the process of marginalization of their science and technology teaching and research to those of the universities in the developed countries is the starting point (see also Fuenzalida's article in this volume).

2 Turn Around

The task facing the universities in the developing countries in the context of the NIEO is thus to turn around from the morass of non-involvement, inequality and irrelevance in which they have been placed and to address themselves to the internal questions of access, relevance, employment relations, social equity and international justice.

2.1 *Access*

The question of access to higher education is an important one in the developing countries. Higher education is still restricted to one to four per cent of the age group (varying among different geographical regions) and it is the qualifying means of entry into the best paid, most prestigious and power-carrying jobs in society. A priority for higher education in developing countries is to make access to it open ended, along with an initial system of reservation of a certain percentage of student- and teacher-places for those from the disadvantaged sections of society. This kind of discrimination in reverse, in favour of those groups, is in one of the countries of Asia provided by legislation favouring the most deprived groups and, in some regions within that country, other social groups. There are objections to these extensions of the access to higher education on various grounds. The most general objection is based on the financial cost involved because more is usually associated with higher cost, and countries face resource scarcities. But the introduction of such modifications as the shift system (evening colleges and morning courses for housewives) and distance education (correspondence and radio instruction) are only a start. The existing higher education infrastructure, which is working at 20–25 per cent of potential capacity, can enrol many more students with nil or marginal additional resources being expended. This attempt at opening up higher education is on the basis of the existing continuing and sequential structures. A modification of this structural feature (i.e. doing away with the obligation of sequential study), would make higher education accessible to all who want it.

A second objection to open access is the fear that the standards of higher education will deteriorate. If the infrastructure – the library, laboratories, playing fields, class rooms – is inadequate for the larger numbers (though the phasing and spacing of the increased access as referred to earlier should deal with this problem of the appropriate student:library, student:laboratory, student:sports facility, student:teacher ratios) there will be lower levels of learning and research. But the problem raised in connection with the quantity-quality paradigm is not an infrastructural problem. It is in relation to the 'educability' and intelligence ability of the additional numbers, the newcomers, who in the developing countries are first or second generation learners. This area of the intellectual abilities of students from varying social backgrounds is a question still under study and discussion in the industrialized countries.[10–16] In the developing countries, the issue has not even begun to be studied, so that it is difficult to make any definitive empirically tested statements about the genetic environmental origins of cognitive behaviour in these societies. One negative starting point is the increasing provision of compensatory education for the first generation learners in the institutions of higher education. The compensations provided is not on the basis of any theory of lower levels of intelligence of those from the poor or lower sectors of society. It is compensatory learning arrangements to make up for:

(a) lack of parental educational guidance since the parents are often illiterate or semi-literate and rarely have higher education qualifications themselves;
(b) lack of books and reading materials in their homes because of parental poverty; and
(c) lack of a place to study in the home, lack of sufficient light and other minimum physical facilities.

A library *cum* study hall for such students along with adequate tutorial provision is developing as part of the integral infrastructure of university campuses in these countries. The other empirical fact to be noted is that while there are sometimes low-level performers among students from affluent families, those who do come up from the disadvantaged social sections are almost always among the high-level performers in higher education institutions.

A third argument against open access is that based on merit. In many of the universities of the developing countries, a merit *cum* means test is being applied or advocated for students from the poor sections of society. Such a test raises theoretical and pragmatic problems. As noted earlier there is not a firm scientific base to determine the scatter of merit or mental ability in a section of society which can be applied to the individual student. Such research as has been done in the developed countries on the issue points to the fact that while environmental factors, as they affect mental abilities, can be fairly certainly and directly measured; but the genetic factors (whether viewed as residue or as monogenic) must first be assumed to be related to cognitive abilities. Such an assumption views cognitive abilities as processes applying to a social group rather than a fixed point (i.e., the state of the individual student's capacity). Because this involves a continuous interaction between the environmental and genetic factors (like the interaction of fertilizer and water which produces the paddy high yields), the separation of the causal factor can only be done at a level of theoretical abstraction. On the pragmatic side, it has not been possible in the developing societies to devise culture-free merit tests. The merit tests that are used consciously or unconsciously assume the validity of the cognitive and affective reaction of the well-to-do, the class of university goers for generations. This tilts the scales against the newcomers, the first-generation learners. This is not to say that all students from all social backgrounds are equally endowed with cognitive abilities. Reference was made earlier to compensatory educational arrangements to compensate for certain educational and material deficits faced by students from the poor sector. What open access, in the context of differing abilities of students from the same or different social backgrounds, involves is a system of higher education which offers diversified courses and different and varying options to its students, a matter to which further reference will be made.

There is also finally the objection that open access will induce a disequilibrium between the supply of and demand for higher education personnel, and that supply, which in both developed and developing countries is outrunning demand, will further increase and bring about a permanent state of disequilibrium. This equilibrium argument is somewhat suspect because it is an equilibrium of those benefiting from the status quo who naturally wish to continue and perpetuate it. What is actually happening in the developing countries is that the increasing supply of graduates expands their employment and self-employment over a wider range of occupations on the one hand, and a lowering of their incomes on the other. On the first effect, in place of the 1:5:94 distribution of higher education graduates in agricultural; industrial; and research, university and service sectors which marked the deployment of higher education graduates in the first decade of the establishment of these institutions (and which is still broadly the distribution in the industrialized countries),[17] the distribution now is around 12-15:20-25:60-68 in these three economic sectors in developing countries.[18] On the second issue, between 1950 and 1970, the annual income of university graduates has declined (in real terms) by twenty-five per cent and has reduced the gap between their annual average and per capita income of the country from 1:15 to 1:10 in that time period.[19]

The system of open access to institutions of higher education in developing countries has implications for second level education. At present this nexus is such that there is a serious distortion in the learning nature and outcomes of the second level which is heavily academic and anti-vocational, because the purpose of its outcome is immediate and sequential entry into non-vocational higher education institutions. All efforts at vocationalizing second level education in developing countries have failed because the system is structured in such a way that it is a one way path to higher education. About 50 per cent of those who complete this level fail to qualify for entrance to higher education institutions and thus becomes wasted human resources. If the system of certification at the end of the second level is replaced, as has been suggested in some countries,[20] by a record of learning and comprehensive performance of each student, this would break the one-way link. It would also change the programme and content of second level education, forcing it to offer a broad spectrum of options so that students would be free to pursue what they like and want, and not what they are obligated to because of a pre-determined, almost pre-destined, single unilinear objective which is higher education, with its required classification into 'pass' and 'fail', and further differentiation into first and second class pass. Open access to higher education in such a system involves also a break in the sequential chain between the two levels to which a more detailed reference will be made later.

The system of open access will be the beginning of the contribution of higher education in the developing countries to the NIEO. It will be a first essay in moving from a structure which is a purveyor of inequalities, both intranational and international (as detailed in the earlier sections), towards one which promotes equality of educational opportunities that must be attained at both the intranational and international levels if not simultaneously, at least without too great a time lag. The controversy as to which comes first – intranational or international educational equality – is an unreal one. The expansion of access to higher education within each developing country is a process of catching up with that of the developed countries at that educational level and one that will close the educational disparity which some recent studies have highlighted.[21] At the intranational level, the simultaneous move towards giving absolute priority to primary and adult education,[22] the freeing of the second level from its one-way link to higher education, and the opening up of access to higher education will reverse the educational disparity between the top and bottom 25 per cent, the top 5 per cent and the bottom 50 per cent and the top 5 per cent and bottom 10 per cent of its population. At the international level, there is the view that with the supply of higher education personnel outstripping rather seriously demand; the positions in the developing countries becoming unavailable along with those alternative new openings within the developed countries and a crisis in higher education in the developed countries is in the making. This will lead to educational reforms which will make available new types of skills, somewhat along lines of the self-employment programmes for university graduates in developing countries. In so far as this typology is a reflection of actual situations in the developed countries, the current higher education inequalities between developed and developing countries will start declining.[23]

Open access to higher education and the changes in adult, primary and second level education in the developing countries constitute a first essay in promoting educational equalities. By themselves they are not a means of countering the inequalities and injustices in society at the national level or between countries at the international level. This is important to realize since much discourse, among the general public as well as among political leaders in the developing countries, tends to place on the school system, including higher education, the realization of objectives and tasks (such as attainment of economic equality, reforming the agrarian system, removal of poverty, creation of employment) for which they are not equipped. The leader of one of these countries repeatedly affirms that reform of the school system will usher in an era of equality and justice and will make the villager 'courageous, happy and peaceful'.[24] Apart from these aims of the NIEO being outside the universe of the school and even the learning system, there is also the implicit assumption that equality of educational opportunity will ensure equality of educational outcomes. This, however, is a separate and additional issue. Open access to higher education with accompanying changes at the other levels, has a more limited purpose – that of ensuring an equality of opportunity to enter and to develop the necessary competences. The objective of ensuring equality of attainments in higher education, the issue of equality of higher education outcomes, leads us back to the question of individual differences in cognitive characteristics, to the multiple causes for success and failure in higher education, and to the broader spectrum of curriculum and learning and research options required by the diversity of the talents of the individuals as well as by society, with its newly emerging redefinitions of development. Open access in higher education is not the overall antidote to social injustice; linked with relevant and diversified learning and research, it is developing into an important contributor to the NIEO.

2.2 *Relevance*

Higher education curricula in the developing countries are discipline-based because, as in the case of such institutions everywhere, the disciplines are a means of taking advantage of the historically given fund of knowledge, of probing frontiers and penetrating them, and in the process, of maintaining and raising academic standards. Disciplines are the infrastructure of intellectual rigour and theoretical development which characterize higher education. The main problem here is that in the majority of the institutions of higher education in developing countries, disciplinary learning and teaching are at low levels of competence. There are peaks of excellence that compare favourably with similar institutions anywhere in the higher education world, and which were developed in the hope that they would serve as models and pace setters for all others. In actual practice, however, these disciplinary accomplishments in the developing countries introduced a new source of intellectual and academic division, so that now attention is being concentrated on ensuring the spread of these intellectually well-endowed institutions and on arranging for their learning clientele to be more representative of the social structure in the country. In some countries, this had involved making admissions to these institutions proportional to various social groups – economic, religious, cultural, linguistic. In others, the centres of excellence in higher education are being replaced by provision for quality higher education in all regions of the country. In yet others, the peak institutions are being used to work with the weaker ones as technical assistants and guides in order to bring about a more general higher level of learning and research. This aspect, the relevance of higher education curricula in the developing countries to the demands of the discipline, is an urgent and inescapable challenge; its response indicates additional facets of relevance which the institutions face.

The disciplinary emphasis faces the familiar 'ivory tower' danger where institutions of higher education become a closed, formalized intellectual circle. In a recent enquiry, conducted among universities in South Asia, on the extent to which faculties in economics are engaged (in the course of their normal studies and investigations), in probing such aspects of the NIEO as:

(i) the effect of trade policies on employment generation either in their studies on employment theory or on the theory of international trade;
(ii) the possibilities of TC DC as part of internal trade theory; and
(iii) the effects of the flow of foreign resources in relation to capital theory.

The general response was that little or no study was undertaken in these and other areas relating to the NIEO because they did not fit into the conceptual framework of the micro or macro economies or industrial economic theory which were the parameters of the departments. This is serious. It means that the disciplinary frameworks, which have to be the starting point, the building blocks, of any system of higher education, are in the developing countries dependent on somewhat outdated formalized conceptual models. They are at home with equilibria established by swapping beavers for deer or the international exchange of corn for wine, but within the basic disciplines these models are not updated in terms of current data. Until that is accomplished, extension of study and investigation of multidisciplinary, interdisciplinary or transdisciplinary approaches will not only be impossible but, where attempted, would amount to implanting a foreign organ on the native plant. This, a second imperative of relevance in higher curricula is for the data on which the disciplines are being developed to be updated *vis-à-vis* national and international information systems. While the natural sciences are fairly updated, using the mass of data available to them locally and from outside, it is in the social and human sciences that there is a disciplinary data lag and that dated conceptual frameworks are noticeable in the developing countries; this calls for early attention and action.

The redefinition of development, national and international, further questions the relevance of the curricula of the institutions of higher education. National development is no longer conceived in unilinear sectoral terms for which the disciplines or some combination of them like mathematical economics, soil chemistry and agricultural biology, heavy engineering and electro-mechanics could provide the analytical answer. At the national level, development is conceived as action initiated and developed by the people to provide themselves, the poor majority, with minimum needs – food, safe drinking water, clothing, housing, health care and family planning, and primary and adult education – for which the state must help generate adequate employment opportunities and launch and sustain a wide-ranging programme of redistributive justice. National development calls on the university and higher education institutions to address themselves to such issues as:

(i) distribution of natural resources as income and wealth producing assets;
(ii) food availabilities and distribution;
(iii) employment, underemployment and unemployment;
(iv) problems of rural transformation to development of human resources;
(v) labour-intensive as well as capital-demanding technologies;
(vi) appropriate distribution between small, medium and large manufacturing industry;
(vii) the population problems of infant mortality, morbidity;
(viii) health care;

(ix) international trade; and
(x) aid, etc.

The moral issues and cultural implications involved in the goals and methods of development also require study. Similarly at the international level, development in the terms of the NIEO poses challenges to institutions of higher education. A country's capacity to compete on relatively equal terms with other countries and to participate in the control and direction of the world system depends on the quality, level of performance and excellence of its universities; they must produce an adequate body of men and women to staff the international agencies that will be instrumental in implementing the NIEO. The problems posed to the university by the NIEO are those set forth in the Declaration and Programme of Action (q.v.) 'Effective control over natural resources and economic activities', 'just and equitable relationship between the prices of raw material, primary commodities, manufactured goods' exported and imported, 'the reformed monetary system', 'improving the competitiveness of natural materials facing competition from synthetic substitutes', 'access to the achievements of modern science technology and promoting the transfer of technology and the creation of indigenous technology', 'technical cooperation among developing-countries', 'producers associations and multinational corporation', 'food reserves', warning system and commodity agreements, 'industrialisation and a new economic structure', 'amelioration of terms of trade and the relevant commitments of UNCTAD and the International Development Strategy'.

As earlier pointed out, the disciplinary structure of universities and institutions of higher education in the developing countries do not provide a conceptual framework within which these demands of national and international development can be met. Delegates from the developing countries are thus often unprepared to undertake the complex and technical discussions and negotiations involved in the emerging concepts of development at the national and international levels. These countries resort to adopting and operating Development Models borrowed from the industrialized countries, which concentrate on growth rates and the technical parameters of savings and investment, stock and flows of money supply, income and wages policy; rather than on developing their own models that respond to their priorities to control poverty, unemployment and inequality etc. And at international meetings of GATT, UNCTAD, UNIDO, IMF-IBRD those from the developing countries improvise their statements and demands on the basis of presentations of the positions and problems as analysed and adumbrated by the personnel from the developed countries. In some of these United Nations gatherings, the circulation of position papers by the United States, the United Kingdom or France to the Group of 77 is awaited before the group from the developing countries formulates its position, relying on the statistics and analyses of the carefully prepared and tightly argued positions on each item, to which the universities and research institutions of the United States, United Kingdom or France have made significant contributions.

Institutions of higher education in developing countries are therefore becoming aware of the need for developing problem-oriented interdisciplinary, multidisciplinary, or even transdisciplinary structures to meet these new demands, in addition to the disciplinary framework which is concerned with understanding and increasing the stock of basic knowledge of the physical, natural and moral world through specializations and sub-specializations. The creation of problem-oriented structures in institutions follows many models.

One is an *ad hoc* approach which involves setting up a cell, centre or institute in relation to a particular problem faced by the country. Thus, the need to provide for the clothing needs of the masses of people in one country has led the department of physical chemistry in one university, in co-operation with the neighbouring engineering departments and some industries, to set up an Institute of Plastics and Polymers Science and Technology to develop synthetic materials to meet clothing needs in the coming decade. Similarly the problems of expanding marine production, both to increase the availability of protein for the poor and to increase marine product exports, have led six universities to establish an Institute of Marine Science and Engineering, which is also exploring sea resources generally. Energy shortages have led to the development of centres and institutes which bring together physicists, chemists, biologists, economists, cost accountants and engineers to work on non-conventional energy sources – solar, wind, tidal, geothermal, bio-gas and bio-fuels. Similar interdisciplinary centres focused on rural poverty, on the biology, economics and sociology of contraception, on foreign trade, and on Gandhian philosophy – with its basic teaching about the limitation of wants and consequent simple life styles – are developing in institutions of higher education. These are individual improvised approaches to meet development problems, but they are increasing rapidly and will continue to do so within higher education institutions in developing countries.

A second model which has been developed in one of the Asian countries is to build a university at a post-graduate level around problem centred interdisciplinary schools. The university has at present eight schools and within each school a number of centres (see Appendix I to this chapter). This innovative effort has just started and is less than a decade old, but already its centres are producing data, studies and research papers related to the problems of local, national and international development as listed earlier. Its graduates are expanding to other universities and helping to establish similar problem-oriented learning and research cells and institutes. The unresolved problems are, first, before there can develop a full-fledged teaching programme, a certain amount of investigation and research is needed as input to the programme; the teaching programmes started at this stage are experimental and tentative. Second, there is the relation between discipline-based departments which do not exist in one university and the problem-oriented schools; these are viewed as a parasite to the best research products of other discipline-based universities. This creates a certain amount of academic tension. And third there is, particularly in the absence of a rudimentary interdisciplinary base in the social sciences, a constant tendency to slide from interdisciplinary to multidisciplinary or even to single disciplines. Finally there is also the simple bread and butter problem: the employment market is discipline oriented. The enterprise wants a chemist not a life scientist, the bank wants an economist not someone steeped in economic studies and so on. Time is needed for the employment market to change and that time is not always available. There is thus a need to resolve these problems and solve the structural and substantive problems inherent in the coexistence of disciplinary and problem-solving post-graduate structures in the universities of the developing countries.

A third model, somewhat similar to that developing in Asia, is the Latin American initiative in establishing universities for National Development which are based on four university area divisions, each of these being divided into a number of problem-oriented departments (see Appendix II to this chapter). Here also the relation between and reconciliation of the traditional disciplinary orientation of the universities and these problem-based structures raise a number of questions which are under study. Should there be a two-tier structure: the lower graduate, or a shorter post-graduate, which is discipline-based, and a second tier, with post-graduate structures for MPhil and PhD scholars, which is interdisciplinary and problem oriented? Should the first level be mainly:

(a) teaching; and
(b) research directed at teaching and training;

and the second level be research, study and investigation into problems? Should the first level be relatively free and autonomous and the second largely commissioned and oriented toward investigation and research? Under these conditions, how can the institutions of higher education discharge the other function incumbent on them – standing apart from society and acting from time to time as its moral conscience and objective judge? A common element in the two tiers exists because the first tier will include in its teaching and learning programmes real life conditions of society – the students of biology studying the biology of paddy or population as a function of fertility, of civil engineering students covering the technical problems of housing for the rural poor and of link roads, the students of the science or technology learning their relation to social objectives in terms of employment, consumption patterns and the two sector economy, the students of economics and sociology focusing their disciplinary studies on the institutional forces that make for poverty and inequality, the students of psychology and communications studies as well as history and the fine arts dealing with cultural change factors, cultural and economic stratification, cultural participation and non-participation by the rural poor in their traditional societies and so on.

The programme of relevance is an on-going programme of curricular reform and restructuration built into the institutions of higher education involving an unending process of innovation, adaptation, and self-renewal both to the demands of the discipline and those of development. The curricular offering must be continuously reviewed and refashioned in light of:

(a) the changes, and in some cases the explosive rates of information increase, within each discipline;
(b) the specific and general demands of local and national development and the NIEO; and
(c) the newly developing relations between work and employment on the one hand and education and training on the other.

The curriculum will no longer be constructed as the function of a sequential system but will reflect as well as feed back the work and employment results which its learners will reflect in their life styles and demand in their study life. It is to a more detailed consideration of this relationship that attention will now be turned.

2.3 *Work and employment*

The NIEO in the first nine sections of its Programme of Action implies a new and restructured international division of labour, as well as a wide range of developments in the field of work and employment in the developing countries. Put briefly the proposed programme of action on food, raw materials, general trade and industrialization involves labour in the developing countries moving more fully into the primary agricultural sector and labour-intensive manufacturing sector, which would be vacated by labour in the industrialized countries, which in turn would move into more capital intensive and science-based occupations. In turn the developing countries will have to help in the transformation of the labour market and redeployment of their work force which will have to find employment for the backlog of 300 million currently unemployed and underemployed and a further 700 million who will be entering the labour force during the next generation.[25] What is the impact of this labour and employment profile on the educational system of the developing countries and what contribution can higher education make to this staggering panorama?

First, the separation of education and work (the first 20–25 years of life being devoted to schooling and the next 30-35 years being devoted to work), which the developing countries inherited from their colonial past, is deteriorating. They are returning to their own past traditions where organized learning which was a function of peer learning and participation in work and community learning was interwoven with socialization. This new education – work linkage that is being rebuilt into their education systems affects all aspects of the system – structure, methods, technologies, curricula and the relationship to all other developmental sectors. Participation in community activities and services such as agricultural activities, small industrial occupations, and environmental sanitation have moved from the extra curricular, pilot and demonstration stage to becoming part of the regular curricula of the learning system – ranging from two weeks spent on technical courses by secondary and higher education students in Iran, two to three months spent on the farm or factory in Cuba and China, one or two years by university students in agricultural and community services in Ethiopia and Tanzania, to full-time factory colleges and factory specialized institutions in Vietnam and the Democratic Republic of Korea. A definition of this work-based learning system is provided in the Indian school curriculum in the following terms:

> socially useful productive work may be described as purposive, meaningful, manual work resulting in either goods or services which are useful to the community. Purposive, productive work and services related to the needs of the students and the community will prove meaningful to the learner. Such work must not be performed mechanically, but must include planning, analysis and detailed preparation at every stage, so that it is educational in essence. Adoption of improved tools and material, where available, and the adoption of modern techniques lead to an appreciation of the needs of a progressive society based on technology. The objectives of this part of the curriculum are to: (a) prepare students to practice and perform manual work individually and collectively, (b) acquaint students with the world of work and services to the community and develop in them a sense of respect for manual workers, (c) develop a desire to be useful members of society and contribute their best to the common good, (d) inculcate positive attitudes of team work and socially desirable values like self-reliance, dignity of labour, tolerance, cooperation, sympathy and helpfulness, (e) help in understanding the principles involved in various forms of work, and (f) lead students to participate increasingly in productive work as they go from one stage of education to another and thereby enable them to earn while they learn.

In regard to higher education, the innovation introduced by the writer in the University of Madras is spreading to all universities in the country and has become part of the University Grants Commission policy frame for the VI Plan. All undergraduate and post-graduate curricula include two to four hours a week of application of the theory learned by each student to the relevant problem being faced in the villages or urban slums, under the guidance of the teacher responsible for class room teaching or tutorial or library work. Academic credit is given for this work-learning to both the student and teacher and appears in the final grading and performance report on each. This education-work link has been developed by the boards of studies in each subject and field tested by the students and members of the local community. A BSc student in physics works on repair of farm implements and maintenance of the energized pumpset or on a solar cooker; a chemistry student on the problems of paper pulp in the village or textile yarn or compost pits; a biology student on plant, poultry, fishery biology; a student of commerce helps the rural co-operative maintain its daily accounts and prepare the periodic balance sheet; the economic and sociology student works with the village council on social and economic surveys, drafting the local five-year plan and the annual income–expenditure budget; the medical student works on preventive and promotional health care for infants and mothers; the technology student on developing industries for making edible oil out of discarded margo seeds or devising simple instruments for threshing and drying, or improved storage bins; and political science and law students serve as clerks of the elected village council and the local rural or urban slum court. This relation between higher education curricula and its application to the local situation is beginning to become a two-way relationship. While the many problems faced by the rural poor or urban slums are being co-operatively attended to, there is feedback from the students and teachers in the boards of studies. This leads to continuous revision of the curricula to fit in with the data and analysis resulting from these exercises. Higher education gains as much as the local community in this two-way relationship.

This also provides amelioration, although not in terms of definitive solutions, of the education–employment relation, which is a real problem in the developing countries, where higher education and long periods of wasteful waiting and unemployment have become near synonymous. In Latin America 25 to 30 per cent of university graduates are unemployed, in Africa it is around 12 per cent, in the Philippines one-third of the college graduates are reported to be without jobs. In Sri Lanka 72 per cent of the unemployed are those with high school and university qualifications, and in India the absolute number of unemployed higher education personnel has passed the 3 million mark. The time series profile is equally grim with an inexorably ascending curve. In one region, a survey disclosed that the unemployment rate among higher education graduates was 25.3 per cent in 1973, 44 per cent in 1974 and 45.5 per cent in 1975.[26] The ILO estimates that for Asia, with additional non-manual sector jobs created at an annual 5 per cent rate, 'one half or more of all secondary (and post secondary) graduates in 1980 would not be able to get such jobs'. The accommodation rate, defined as the percentage of secondary and higher education graduates absorbable in non-manual jobs, is estimated at 22 per cent in Asia (26 per cent for India, 27 per cent for the Republic of Korea, 54.5 per cent for Malaysia, 22 per cent for the Philippines, 53 per cent for Singapore, 17 per cent for Sri Lanka), at 21 per cent on the average for countries in Latin America, and an average of 20 per cent for Africa. This seemingly grim picture may be optimistic, as in the case of India; that country's Planning Commission, on the basis of a more detailed and precise computation, places the country accommodation rate at 11 per cent (rather than ILOs 26 per cent).[27] The work-based curricula that are developing at all levels of education will ameliorate the unemployment prospects of higher education in two ways.

First, the curricula are unwittingly beginning to weaken the seemingly indissoluble link between completion of higher education and job entry into the organized sector, unwittingly because the breaking of the link is not the main purpose of work-based education; as the length of the unemployment queue lengthens those at the rear begin looking around for alternative employment opportunities and in increasing numbers they are finding them. What is needed is something more fundamental. At present higher education is seen as the monopoly gateway to full-time, secure, salaried employment, leading the country's largest self employed sector, the farmer, to make every effort to see that his children escape his risk-laden life through entering the salaried employment avenue via higher education. Only after this view is changed will higher education personnel begin to use their innate abilities and some part of the training they have acquired to find alternative self-employment avenues. What is now happening is that the absence of employment opportunities for the majority of higher education graduates (together with the taste of autonomy, and the chance to use their inherent managerial and entrepreneurial abilities high-lighted in the new work-based higher education system), is leading them to find self-employment enterprises – on farms and in animal husbandry areas, as technicians and entrepreneurs of small self-managed industries, in opening new avenues in the repair and maintenance of machines and implements, in the processing, finishing and distributive trades, etc. As self-employment thus gradually supplements, and in time becomes the dominant employment mode over, salaried employment, work-based higher education will not only be making its ameliorative contribution to this process, the content of the work curriculum will be enriched by the feedback from those self-employed. The governments of developing countries now need to divert investment resources to self-employment perspectives (in some kind of ratio to the areas offering wage employment) and they are beginning to do just that.

The second ameliorative effect of the work-based higher education curricula on the explosive unemployment situation is related to the fact that the higher education unemployment profile in the developing countries is not simply a quantitative one, which has been the concentration up to the present, but a qualitative one. That is, it is not a function of the higher education system turning out too many graduates (the enrolment at this level is less than 4 per cent of the age group); it is that educational outputs do not meet the skill needs and demands of society, it is turning out the wrong kind of skills in a kind of inverted 'U' curve pattern. The unmet demands in the developing countries are in the area of fluctuating and low productivity primary agricultural industry. The need is for extension agents who can carry the research results to the farms; for technicians who can maintain, repair and rent out farm implements, and through improved storage reduce the heavy losses of post harvest systems; for entrepreneurs and managers of small industries, fisheries, and animal husbandry enterprises who can help the marginal farmer and landless agricultural labourer supplement monthly incomes by producing the consumption goods needed by the mass of the people (something the organized sector does not and cannot do), for rural nutritionists, rural community health workers and assistants. Higher education has been, through its economic and social links, training its personnel for the miniscule urban industrial sector, which has not been able to absorb more than 25 per cent of its graduates as noted earlier. Here the work-based higher education curricula and the slowly developing problem-oriented higher education structures are widening the learning spectrum and training base of higher education personnel and indicating the amelioration of the unemployment perspective that they face.

But the long-term definitive solution of the problem of employment of higher education personnel in the developing countries, in accordance with employment goals and objectives of the International Development Strategy, which the NIEO declares that it 'complements and strengthens', calls for two rather drastic academic and structural mutations. One relates to the examination system and its outcomes, and the other relates to a new sequencing of the education system.

The first urgent long-term measure (which repeats and pulls together earlier separate suggestions) is to replace the present examination system. As an evaluation of a person's intelligence and learning ability and achievements it has been questioned on several scientific and social grounds; scientific because a one-time examination may be a test of memory but not one of cognitive ability; social because it promotes inequality by creating a system of educational outcasts called 'failed candidates' and arranges the 'survivors' in a hierarchy of first class or outstanding, second class or good, and third class or poor, which is the source of social snobbery and personal corruption. This system should be replaced by a simple record of learning attitudes and attainments in both the theory and application of programmes of study. Many higher education systems in the developing countries are moving in this direction by replacing partly or wholly the examination with a continuous record of the individual student's learning comprehensively defined. However, the outcomes of these records are still expressed as grades and this too needs replacement. Until present certification procedures and systems of marking and grading are abolished, the inequitable link between educational certification and employment prospects in the coveted organized sector will not be broken. Just as the abolition of the examination system and its accompanying certificates, degrees and diplomas, will help the learning system to develop culture-free tests and evaluation, so also will it ensure that the employing agencies (and other levels of education) devise other selection procedures, and assessments of the candidates being considered. Higher education's functions of providing opportunities for advanced study, better and more satisfying employment opportunities to the individual, and contributions to the equity goals of national development as well as the NIEO should not be distorted. The inequitable link between the formal education system and small organized labour market, between the curriculum and the selection syndrome should be broken so that higher education can become the home of learning how to live and work in accordance with one's capacities, preferences, and well being.

The other long-term structural change needed to solve the education-employment crisis is to break the sequence of the present education system, where the only purpose of primary education is to enter secondary education, and the only purpose of secondary education is to enter higher education – as quickly as possible, as noted earlier. This is neither academically necessary nor socially desirable. It is not academically necessary since modern biogenetic research tells us that 80 per cent of the intelligence base of a human being is formed before 8 years of age, so that the subsequent 15-20 long years of schooling and college add a mere 20 per cent to that base – and of course masses of technical information. It is therefore necessary for all to have a sound broad initial learning opportunity involving pre-primary and primary education up to age 14 or 17. Hence the first step is to ensure everyone access to this common, basic minimum theoretical and work-based learning up to whatever age each country decides. Further education at the second and third level should be by social consensus through the legal system and should take place at any time in an individual's life. Those who wish to work on the farm, at the factory, in the service sector, or at home on cottage tasks should have the same social and economic status as those who are motivated to pursue higher education, of which there will always be a sufficient number. The curriculum, structure and learning assessment at the first level of education should be work-based, to allow each completer to enter any area of work or continue full-time learning. The academic attitudes behind such terms as 'drop outs' and 'terminal education' must be replaced by a period of work being treated equally with a period of full-time learning for an individual's pursuit of further education. This has been tried in some of the developing countries on a small, individual, pilot basis. In countries like Tanzania and China a period of work is treated as essential in the admission requirements of higher education institutions. In one country a group of village-level workers with five years' extension work were admitted to the BSc agricultural course, along with the others who had completed the normal three years' undergraduate course. It was found that the former completed the course in two years instead of the three years taken by the latter. They not only obtained higher grades (which as noted earlier have their limitations as indicators of learning attainments) but performed better in the extension programmes in which they were subsequently employed.[28]

This system of making higher education in the developing countries a form of continuing education which can be entered at any time in an individual's life (in order to learn a new skill, or add to a fund of knowledge and information, or move into the area of research and investigation) is socially desirable. Sequential higher education, as a continuation of the previous levels of education, would thus no longer be the monopoly source of the best paying, prestigious, and meritocratic employment opportunities in society. That line would have been broken both by the replacement of the system of certification and by the work avenues newly opened to these persons. These work avenues to high-level employment and higher education would include what we call today non-formal education and training. This would not only be an adequate entrance qualification to both but it will feed into formal full-time higher education in such a manner that it will no longer be a parallel system as we have it today. Further, such a system of making higher education a part of continuing recurrent education will remove any financial or infrastructural constraints and fears surrounding open access to higher education – the starting-point of this essay on the contribution of higher education to the NIEO. Part of the NIEO should be to assure equality of educational opportunities and to reduce inequalities in educational outcomes as far as employment and income opportunities are concerned.

3 Research, Information and Co-operation

In developing countries the contribution of higher education to the NIEO includes some constraints which call for research and the development of new sources of information. Even within the framework of correcting the inequalities within the educational system (the major thrust of the preceding sections), there are grey areas. The place of character-building and moral education in relation to the individual student's and teacher's perception of objectivity, integrity, compassion and charity (as well as the ethical dimensions of the national and international development goals) have to be expressed in learning modules, a task which requires more study, in addition to the rapidly developing work on economic and social learning modules. Further research is needed on the motivation, incentives and disincentives of potential participants in the system of recurrent and continuing further education which follows the primary level of learning for all. Each country will have to gather data and undertake the necessary analysis in order to restructure the curricula, the evaluation system, the scheduling, and the training of teachers for the primary and post primary levels of learning.

While the links between the educational system and employment in the organized, salaried sector are being loosened and ultimately broken, there are other societal relationships which require more information and studies in the developing countries. One is empirical studies on the distribution of talent among students and potential students from various social backgrounds. Much work on this has been done in the developed countries. What is the distribution of cognitive abilities among the learning groups and individuals? How much of this distribution is due to innate, inherent qualities? How much is due to the availability of adequate nutrition, particularly before 8 years of age? How much is due to the school environment? What is the relationship, if any, between this distribution and labour market analyses which are being undertaken with increasing rigour in the developing countries? There is the larger social question: Can higher education make a contribution towards a more equal distribution of income and assets? By narrowing the gap between the national average per capita income and the average income of persons with higher education qualifications and by spreading unemployment a little less unevenly it can make an indirect contribution as noted earlier. Is the development of certain forms of higher education and income redistribution more complex in the developing countries? Detailed studies are needed on such seemingly simple matters as the educational qualifications of the labour force; the various formal and non-formal educational processes operating in the country; the actual incomes, and even more, the expected incomes of the participants in the systems of higher education.

Further work needs to be focused on the social costs and social benefits of higher education in each of the developing countries. The current exercises in this area are dominated by analogies which economists have drawn between the university and the factory, using the theory of human capital and establishing analogies between the hierarchy of diplomas and degrees with vertical production processes, the teacher-student ratios, the teacher-equipment ratios and the students. These economists equate building ratios with input coefficients; the degree holders with production output; unit costs of higher education with average production costs, and, benefits from higher education with benefits from physical capital. Both the educational analogies and their economic variables are now being questioned. In any study of costs and benefits of higher education, data needs to be gathered on:

1 the external effects, the external productivity and/or losses which are dominant in the case of higher education compared to that of industrial or agricultural production; and
2 the imputation problem of ascribing these externalities to education.

This latter problem is partially overcome by widening the universe of higher education to include what is called non-formal as well as formal systems and their total costs and benefits to society.

Finally, the NIEO points to the need for co-operation among the higher education systems of developing countries. Following Leontief's division of the developing countries into fifteen regions (which can be further subdivided into twenty-five or thirty), fruitful areas of co-operation between their higher education systems can be developed to promote higher levels of self-reliance, collectively and individually, and to accelerate national, subregional and regional development. Also joint action can be planned by these institutions to produce the personnel who can plan, staff and operate the NIEO. Such co-operative action may include:

(a) the availability of research and teaching staff to the institutions within the region or sub-region;
(b) the provision of learning and research opportunities in the work-oriented curricula and in the innovative relations between higher education and employment;
(c) the preparation of personnel for the NIEO problem-oriented interdisciplinary structures which each country in the region may separately specialize in;
(d) the joint production of educational materials (e.g. equipment for science teaching at all levels of education and research, and for technological laboratories and workshops); and
(e) the co-operative production of school and college building materials so that from the beginning the region or sub-region may become self-sufficient in these areas.

This means that in place of the present international division of labour, whereby multinational firms produce and supply (or assemble through their subsidiaries in the Third World countries) educational industrial infrastructural products, a new division of labour can be developed whereby such educational and science-based industries can be developed within the sub-regions to meet the needs of the mass markets within the countries of the area. This would lessen the large outflow of resources from those countries previously needed to pay for the educational and scientific infrastructural products imported from the more developed countries.

The massive educational clientele in the developing countries in the coming decades will create a demand for a collective use of electronic instruments on an intercountry basis. At present electronic instruments such as radiovision and diversified, modern learning modules are limited to a few elite institutions of higher education. Such a co-operative programme can help ensure collective use of large infrastructures based on technologically advanced communication systems, direct reception satellites, banks of audio-visual programmes and co-operative production of teaching and learning materials, which will both enrich the content and direct the input and output of the institutions in the direction of the goals set forth in the NIEO. More information must be developed on the needs, resources, and potentials of the regions and sub-regions. A series of feasibility studies and surveys of the co-operative programmes outlined above indicating where the regional association of universities can start their programmes of action is needed.

As a contributor to the NIEO, international co-operation in higher education might begin by having these institutions engage in scenario building for each of the fifteen regional subdivisions of the world economy envisioned in the Leontief model. The scenarios would include the various alternatives facing each group and each country with regard to its educational future as viewed from the three dimensions – access, curriculum, and employment – as set forth in this note, or from other end-purposes which would serve the NIEO. These could include: increased internal productivity, renovation and restructuration in conformity with the doctrine of life-long education, reducing international and/or intranational inequalities, etc. This suggested scenario approach breaks away from the projection approach of the 1960s and 1970s, and instead defines goals and objectives in qualitative terms from which alternative educational and economic paths can be derived.

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Appendix I

School of Life Sciences

1 Centre of Molecular Biology
2 Centre of Genetics

School of International Studies

1 Centre for South, South East and Central Asian Studies
2 Centre for Studies in Diplomacy, International Law and Economics
3 Centre for East Asian Studies
4 Centre for West Asian and African Studies
5 Centre for Soviet and East European Studies
6 Centre for International Politics and Organization
7 Centre for American and West European Studies

School of Languages

1 Centre for Asian and African Languages
2 Centre of English Language Group
3 Centre of French Studies
4 Centre of German Studies
5 Centre of Indian Languages
6 Centre of Linguistics
7 Centre of Russian Studies
8 Centre of Spanish Studies

School of Social Sciences

1 Centre of Historical Studies
2 Centre for Study of Regional Development
3 Centre for the Studies of Social System
4 Centre for Political Studies
5 Centre of Social Medicine and Community Health
6 Centre for Economic Studies and Planning
7 Centre for Studies in Science Policy
8 Centre for Educational Studies

School of Environmental Sciences

1 Centre of Ecology
2 Centre of Water Basins
3 Centre of Pollution Studies
4 Centre of Geochemistry

School of Arts and Aesthetics

1 Centre of Cultivation of Arts

School of Computer and System

1 Centre of Mathematics
2 Centre of Computer Software

School of Physical Sciences

1 Centre of Nuclear Sciences
2 Centre of Theoretical Studies

Appendix II

Area Division I Agricultural Production and Supply comprised of the following departments:

1. Production (by product type and condition)
2. Policy (resource use, prices, wages, finance, mechanization, etc.)
3. Supply (storage, processing, distribution, marketing, and so on)
4. Education (teacher education, formal curricula and institution, non formal system)

Area Division II Economic and Social Affairs comprised of the following departments:

1. Population Problems
2. Poverty and Unemployment
3. Social Justice: institutions
4. Rural and Urban Development
5. Education for Development
6. Social and Economic Policy

Area Division III Health comprised of the following departments:

1. Medicine
2. Nursing
3. Medical Assistant and/or Nurse Practitioners
4. Auxiliary

Area Division IV Cultural Affairs comprised of the following departments:

1. Languages
2. Cultural Studies
3. Arts

III The Value of Higher Education in Low Income Countries: An Economist's View

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Abstract In the light of the New International Economic Order (NIEO) it is important to identify the relationship between a country's development and its investments in health and education as capital stock. In the low income countries three factors often impede the progress of development: capital scarcity, the long-term aspects of education capital, and adjustment lags – especially in the public sector. The dynamics of development in low income countries have been steady as reflected in advancements in health and educational services, particularly in higher education and research capabilities. However, the relationship between expectations and possibilities in the area of higher education often indicates a given country's role in the NIEO. The role of science and technology in higher education, the relationship between institutions of higher education and the home government, the trade-offs inherent in equity v. efficiency, and the impact which scientific research has upon the political environment of any country each have internal consequences. In respect to the NIEO each of these areas affects low income countries differently from developed countries in the Group of 77;and these areas indicate different impacts to the socialist economies than to the market economies.

1 Introduction

For me to praise higher education would be unseemly and for me to bury it would be premature. What I shall do is to put a price tag on it, knowing full well that this will not please anyone, least of all the ideological critics of higher education. Higher education the world over is being severely criticized. It has become fashionable to assail the performance of colleges and universities. There is hostility to universities because of their commitment to advancement of the sciences, to the technology that the sciences spawn, and to the humanities – which are deemed by some to be obsolete. Many critics contend that colleges and universities are not sufficiently concerned about social and economic reforms, are not supporting government policies wholeheartedly and disregard equity in admission of students and in appointment of faculty. Because the roots of much criticism are ideological, in this respect higher education, whether it be in high or low income countries, is not spared.

In view of all that is deemed to be wrong in higher education, is there any point in appealing to economic analysis? No doubt an economist should be wary of entering upon this hazardous terrain, yet even where data are inadequate in many low income countries, economic theory has much relevance. The plausibility of the implications derived from theory can be considered and in some cases these implications can be tested empirically. Higher education in any society is obviously not a free activity; on the contrary it is a specialized costly economic activity. Scarce resources are allocated to support colleges and universities and the services that they render are valuable. The costs of higher education can be reckoned more readily than can the value of its services.

Although the costs are only one aspect of higher education, a good deal can be inferred from them that is important in understanding the allocation of resources to this activity. For example, over a decade ago Panchamukhi[1] showed that for India the total costs of university and professional education over the decade 1950/51 to 1959/60 came to about 700 crores of rupees. It is impressive that over three-fifths of these costs were private costs, mainly earnings foregone by the students. The inference is clear that in analysing the relevant allocative behaviour it is essential to consider both private and public allocations. Whereas private expenditures on higher education are often ignored, in fact the private allocations of parents and students exceed public expenditures.

My purpose is to understand the actual private behaviour of people and that of their governments as it is revealed in their allocation of resources in acquiring the services rendered by colleges and universities. The information that is needed for this purpose is in short supply. We know that parents, students and public agencies make their allocative decisions on the basis of information that is far from perfect. Every investment in higher education, regardless of the form it takes, is a forward, long-run, future commitment, and therefore is beset with risk and uncertainty. Under these circumstances individual families and governments must learn from experience. It is fair to say that many governmental agencies have learned that manpower planning does not provide a solution for the allocation problem related to higher education. No economic planning model can solve this problem. No computer can print the instructions that will tell public bodies or students what investments they should make in higher education. The limitations of formal educational planning models have been competently set forth in various studies during recent years. I find the review of these studies by Psacharopoulos[2] useful and to the point. It covers what has been done in educational planning in the last 20 years and it traces the evolution of key theories and methodologies, including the present state of the arts. The approach of my essay is to learn from recent past experience under the dynamic conditions that characterize developments of low income countries.

The dynamics of development in low income countries involves a number of important factors that play a relatively small role in the development in high income countries. Before I begin to examine these factors there are three related considerations that call for a brief comment: the scarcity of capital, the long-term nature of most investments in higher education, and the longer lag of public than of private behaviour in learning from experiences.

1.1 *Capital scarcity*

It is of course obvious that low income countries do not have the luxury of abundant capital. As their development proceeds, the demand for additional capital increases markedly. An ever-present constraint is the high cost of funds whatever the form of investment. Although the rate of savings may be high, the amount is small because per capita income is low compared to that in high income countries. We should notice, however, that national economic accounts understate by a wide margin the actual savings that occur because these accounts regard education as pure consumption and they accordingly omit both public and private expenditures on schooling and in higher education from investment accounts. I shall present some estimates for India later in this essay that suggest the magnitude of this omission.

Capital from foreign sources for higher education is understandably suspect. Whether such capital comes from foreign governments, from the World Bank, from other United Nations sources, or from private foundations, the terms on which it is available are viewed by the receiving country as likely to have some adverse influence on what that country deems to be the purposes of her colleges and universities. Although foreign capital to construct a steel mill, or an irrigation facility, is not free of outside influence, countries find it more manageable than is the case when it comes to higher education.

1.2 *Educational capital is long term*

A farm tractor built to last 20 years adds more to the stock of such capital than does one that lasts only 5 years. Additions to the stock of educational capital as a rule render services for many years. A college or university education serves most students over most of their remaining life. Expenditures on buildings and facilities are long-term investments. The annual budget to support the faculty is also in principle a long-term commitment, even though security of tenure of individuals is frequently violated. The building of a corps of well qualified agricultural scientists who are also members of a university faculty – one of the major achievements of a number of low income countries – is clearly a long-term enterprise. Agricultural research that will be worthwhile is not an activity that can be established quickly. Research that contributes to the modernization of agriculture usually takes years to be consummated. Most research has this long-term time dimension.

1.3 *Lags in adjustment*

If individuals and public decision-making bodies had perfect foresight about future events and developments, and if they had the capacity to act in accordance with that foresight, there would be no lags. But it is as fruitless to dream of political and economic behaviour that is impossible as it is to dream of life on this earth without gravity. Public bodies and people privately must cope with unanticipated events and developments, and the time it takes them to do so measures the lags here under consideration. In economic affairs, contrary to widely held belief, public bodies are slower than individuals are in their private behaviour in perceiving, interpreting and responding appropriately to changes in economic conditions. This difference in *adjustment lags* is clearly evident in agriculture, for example, in the promptness of farmers in adopting the more profitable high-yielding wheat and rice varieties compared to the slowness of governments in altering their price policies in line with changes in the value of wheat relative to rice. Millions of farmers throughout the low income countries have demonstrated that they are alert to better opportunities and that they act promptly to take advantage of these by reallocating the resources in their small domain. Governments are slow in learning that policies must be adjusted as economic conditions change. It is remarkable how well farmers have performed despite the distortions in agricultural incentives from ill-advised interventions by governments.[3] Similar patterns in public and private lags characterize other economic sectors, including the activities pertaining to households. Higher education is no exception: as unanticipated events and developments occur, parents and students respond most promptly, public bodies at a much slower rate, and well-established, autonomous colleges and universities more slowly still.

2 Dynamics of Development

Development brings hope wrapped with frustrations. Economic disequilibria abound because the process of development constantly rearranges all manner of economic options. Living with and adjusting to the dynamics of development is akin to the baffling experiences of teenagers during their years of rapid growth. Firms, households, sectors and regions within the country get out of balance with each other, and so does higher education. Economic disequilibria are inherent in the process of modernization.[4]

The economic processes of development are much the same in low and high income countries. The stock of capital must be augmented by means of investment in physical and in human capital, and by adjusting to changes in relative prices of products and factors, including changes in the value of the services rendered by human agents. These adjustments entail reallocating the available resources as economic conditions change. As activities, these are all means to the end of maximizing the satisfactions and thereby the welfare of the people served by the economy. There are, however, several special activities in many low income countries that have substantial effects and in turn are affected by the dynamics of development that now play a smaller role in high income countries. These special activities include the improvements in health that account for the remarkable increases in life span of youth and adults, and the high rate of increase in education.

I shall digress to state the reasons for my frequent appeal to the dynamics of development in India. The relevant data are better for India than for most other low income countries. There are useful studies of the politics and the economics of higher education to draw upon in the case of India.[5] Compared to most other countries in this class, India has measurably democratized her colleges and universities without incurring serious instability. Although there has been considerable governmental intervention, higher education in India has not been critically politicized. Among the larger countries, the higher education record of Brazil and Mexico is in some major respects similar to that of India, but useful data are harder to come by. Many countries have seriously politicized higher education. The resulting instability and disorganization have greatly impaired university instruction and research. Argentina is a notable example.

Another reason for drawing on the Indian evidence is that it gives one a new perspective on the higher education policy of China during recent decades compared to the policy of India throughout the period since her independence. Higher education has provided India with many trained young professionals for the various sciences, for engineering, for medicine, and for agricultural research.[6] China now acknowledges that as a consequence of the disorganization of higher education during recent decades she faces a serious shortage of young professionals.

There is another part to this digression; it pertains to the treatment of the value of the services of colleges and universities as a means of increasing the stock of human capital. During the past three decades a small corps of economists has concentrated its analytical work on human capital. Economic theory has been extended to make room for human capital as an integral part of capital theory. In this approach the acquisition costs and the value of the stock of human capital consists of many different forms including child care, home experience acquired by children, schooling, higher education, on-the-job training, migration, and health. Furthermore, increasing attention is being given to the allocation of the time of individuals, to the value of the time of women in household production and in the labour force, to marriage and fertility and more generally to the economics of the family.

2.1 *Achievements of a number of low income countries*

The process of development in many of these countries is benefiting appreciably from improvements in the quality of the population. These improvements are special activities in their development. They are important achievements to which all too little attention has been given by the analysts of development and of higher education. These achievements have in part been made possible by university research and by university trained professionals in engineering, technology, medicine, public and private administrative work, and in agricultural research.[7]

Although it is difficult to specify and measure the quality of a population, the concept of quality is not new in economics. It is well known that the differences in the quality of the original properties of land are an essential part of the Ricardian Theory of Rent. The quality of cropland, specifically its productivity, can as a rule be improved by suitable investments. Most factors of production and the goods and services that are produced differ importantly in quality. For my purpose the attributes of acquired population quality are valuable and they can be augmented by appropriate investment which is human capital.

Economic modernization appreciably enhances new opportunities that give rise to incentives to acquire additional human capital. For example, the high-yielding Mexican wheat that India acquired in the early 1960s was a major modernizing event. Although the Mexican variety was much more productive than the traditional varieties that it replaced, it did have various producer and consumer limitations under Indian conditions. Indian agricultural scientists in a few years modified and improved appreciably the genetic composition of the Mexican wheat, and in doing so reduced these limitations. This achievement on the part of Indian scientists was possible because India already had a sizeable stock of this specialized human capital. Universities in India, as noted above, had contributed substantially to building this stock of scientific skills. Farm people in the Punjab, while not dependent on higher education in adopting the new wheat varieties, experimented with a view of obtaining needed information as they participated in the Green Revolution. The point here is that modernization is a source of many new experiences that entail learning valuable new skills and acquiring useful information. Since the economic effects of education are pervasive I shall consider schooling and higher education in some detail. I also rank high in importance the improvements in health. The opportunities and incentives to invest in health and in education are interdependent. To understand the actual investment in acquired human capital it is necessary to be ever mindful of the interactions between and among the various processes of development that contribute to population quality.

2.2 *Health capital*

Many low income countries are the beneficiaries of a life-span revolution. This revolutionary achievement has had strong positive effects on investment in human capital including higher education. Since 1950 the life expectancy at birth has increased 40 per cent or more and it is still rising. To the best of my knowledge, Western Europe and North America never attained so large an increase in life span in so short a period. *This achievement on the part of many low income countries is unprecedented.*

The decline in the mortality of infants and of very young children is only a part of this story. The mortality of older children, youth and adults has also declined sharply. I shall use the phrase 'life span' to refer to their life expectancy at ages, 10, 20, and at older ages. The longer life span of children who have reached the age when they are in school and of young adults is central to my approach.

The Ram-Schultz study[8] deals with the economics of these demographic developments in India. I believe that the gains in life span achieved by many low income countries are well illustrated by developments in India. From 1951 to 1971, life expectancy at birth of males rose from 32.4 to 46.4 years, which is an increase of 43 per cent, and that of females rose from 31.7 to 44.7 years, an increase of 41 per cent. The notable increases in life span that occurred over these two decades are shown for selected ages beginning with age 10 and on to age 60 in Table III.1 and Figure III.1. The increases in the life span of males ranges from 25 to 35 per cent and of females from 20 to 22 per cent. The expected life span, however, in years for males and females at ages 40, 50 and 60 are virtually the same for 1971.

Table III.1 Increase in expected life span of males and females in India between 1957 and 1971 at selected ages*

Age	Expected Life Span				Increase 1951-1971			
	Males		Females		Males		Females	
	(1951)	(1971)	(1951)	(1971)	(Years)	(%)	(Years)	(%)
10	39.0	48.8	39.5	47.7	9.8	25	8.2	21
20	33.0	41.1	32.9	39.9	8.1	25	7.0	21
30	26.6	33.3	26.2	32.0	6.7	25	5.8	22
40	20.5	25.9	21.1	25.4	5.4	26	4.3	20
50	14.9	19.2	16.2	19.7	4.3	29	3.5	22
60	10.1	13.6	11.3	13.8	3.5	35	2.5	22

Sources: 1951: *Census of India 1951*, Paper No. 2 of 1956, pp. 35-8; 1971: *Census of India 1971*, Paper No. 1 of 1977, pp. 16-19.
* This table is from, Ram, R. and Schultz, T. W., op. cit.

As yet all too little is known about the precise contributions of the various public programmes and private activities of people that account for the large improvements in health. Public programmes using trained professional personnel have undoubtedly contributed a great deal.[9] The private demand for better health services is also a part of this story. I find it plausible that the responses of households and of individuals to better health opportunities (to be had from new health serving products and facilities that are more efficient relative to their costs than the traditional ones), are in principle similar to the responses of farmers to new high yielding wheat and rice varieties. People in these countries

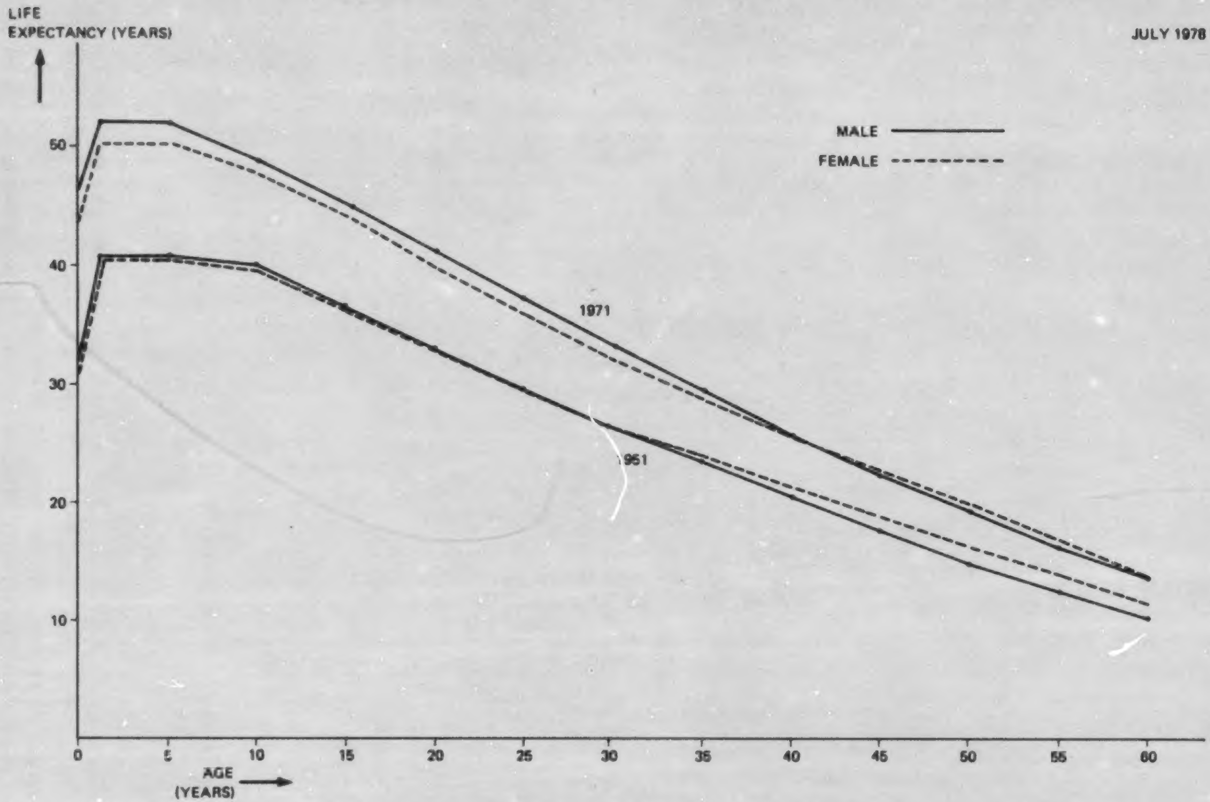

Figure III.1. Age-specific life expectancy: India 1951 and 1971 censuses. *Source*: Ram, R. and Schultz, T. W., op. cit.

have been purchasing new antibiotics (drugs), they have been acquiring advice and information from new health centres, and they have been benefiting from various public health programmes.

The many studies that focus on malnutrition are not designed to measure changes in nutrition by countries over time. Food consumption per capita, however, has in general been increasing, albeit slowly. The implication is that nutrition has been improving. The public health programmes almost surely have been important. Would that we knew at least approximately the quantitative contributions of these programmes.

Because of the gross neglect of the economic behaviour of households, it warrants repeating that the behaviour of households manifests a private demand for useful drugs, for health services and for more and higher quality food. The supply curve of these products and services has been shifting to the right, which implies that they have become available to households at a lower price than previously. In this context housewives are the entrepreneurs who perceive, interpret, and (when they find the new opportunities worthwhile) respond to the implied incentives to improve the welfare of their families. There is also a demand for public programmes that improve the supply of drinking water and that reduce the incidence of various widespread diseases.

The economic implications of this achievement in the extension of life span are highly instructive and empirically testable. The longer life span is a strong factor in determining both the incentives to invest in various forms of human capital and the value of the stocks of such capital. Human capital theory treats everyone's state of health as a stock (i.e. as health capital, and its contribution as health services). A part of the quality of the initial stock of health is inherited and a part is acquired by investment in health capital. This stock of health depreciates over time and at an increasing rate in later life. There are acquisition and maintenance costs which make up the gross investment in health capital. These investments include child care, nutrition, housing, medical services, exercise, and use of one's own time. The flow of services that health capital renders consists of 'healthy time', or 'sickness-free time', namely inputs into work, consumption and leisure.[10]

The favourable consequences of the longer life span are pervasive. Foremost, in my view, is the additional satisfaction (utility) that people derive from longer life. While this is hard to measure, there is little doubt that the value of life is enhanced by its extension. Measurement, however, is not impossible. Usher[11] has developed an ingenious approach to determine the additional utility that people derive from increases in life expectancy. His application of this extension of theory to particular low income countries suggests that the real rate of economic growth is appreciably higher than that shown by the national statistics of the countries where the life span has been increasing rapidly. In the context of the dynamics of development, the incentives of individuals to acquire more education and of parents for investment in the education of their children are increased as future earnings accrue over more years of productive working life. Additional on-the-job training after having completed college, and internships and post-doctoral training after advanced education, become more worthwhile. The additional health capital and the accompanying other forms of human capital increase the productivity of skilled and unskilled workers. A longer life results in more years of participation in the labour force. Also, more useful man-hours are forthcoming as a consequence of the reduction in 'sick' time and the better health and vitality of workers results in more productivity per man-hour at work.

The Ram-Schultz study provides some evidence on the gains in productivity of agricultural labour in India that have been realized as a consequence of improvements in health. The most telling part of that evidence is the productivity effect of the cycle that has characterized the malaria programmes.[12]

2.2 *Educational capital*

Natural resources, physical capital and raw labour are not sufficient in developing a modern, highly productive economy. A wide array of human skills are essential in fuelling the dynamics of development. Without them the economic prospects are bleak. Many experts over-rate the necessity of having natural resources within the domain of the 'country'. The economic successes of the early city states in the Mediterranean area and along the coast of Northern Europe, and currently Hong Kong and Singapore, do not support these experts. Nor does the modernization, for example, that Denmark, Switzerland and Japan have achieved. To repeat, it is not possible to utilize efficiently the many complex forms of modern physical capital without a relatively high level of human skills.

Furthermore, the services of higher education, under present day opportunities to modernize, are also essential. To benefit fully from the advances in the sciences, wherever these are made throughout the world, and from the new productive technologies that emerge from these advances, a country must have a corps of competent scientists and technicians. It is one of the major functions of higher education to provide these specialized scientific and technical skills.

I appeal to the reasoned historical perspective on literacy in early modernization and on the role of education in economic development during recent decades provided by Anderson and Bowman.[13] They trace the linkage between early industrialization in the West and literacy and conclude that literacy was more important than usually has been acknowledged. They show that the development and transmission of practical knowledge and intellectual skills are at the heart of economic development.

I cite from their closing paragraph:

> . . . a dynamic economy can be launched and sustained only through the efforts of man at all social levels who embody both conventional learning and technical-manipulative skills – including specifically skills in the decoding

> of instructions and the 'debugging' of new processes. A complex economy rests on widely diffused tools for communication, storage, and retrieval of knowledge. But it depends no less on the unrecorded know-how that grows out of experience in practical affairs, knowledge that spreads only among men with technical 'feel'. We refer not to empty demands that 'youth must be taught to value manual work'. It is Schumpeter's 'innovative entrepreneurship' that we have in mind; this, he insisted, was linked mainly to processing and technical rather than to commercial activities.

In an earlier study I examined how education and experience influence the capabilities of human beings to perceive, to interpret correctly and to appropriately reallocate resources.[14] No matter what part of a modernizing economy we examine people are consciously rearranging their resources in response to changes in economic conditions. This 'allocative ability' is not restricted to business entrepreneurs. People who work for hire or who are self-employed are reallocating their services in response to changes in the value of the work they do. So are housewives in devoting their time in combination with purchased goods and services in household production. Students likewise are reallocating their own time along with the educational services they purchase as they respond to changes in expected earnings and in the personal satisfactions they expect to derive from their education. Consumption opportunities are also changing and inasmuch as pure consumption entails time, here too people are reallocating their own time. To determine the value of these 'allocative abilities' it is necessary to extend the concept and role of entrepreneurship. The findings of a large number of studies show consistent and significant positive effects of education on these allocative abilities.

The educational achievements of many low income countries are a major contribution to their development. The cost of education is deemed to be worthwhile, judging from the demand of parents and students for more education. The costs of schooling in low income countries and the distribution of schooling by age within the population have distinctive properties.[15] In reckoning the costs in these countries, the value of the work that young children do for their parents must be included. Thus, even for very young children during their first years of school, the rank and file of parents forego (sacrifice) the value of the work that children could perform. This cost component consists of earnings foregone. As schooling rises in successive age cohorts, there is the vintage effect in each successive level of skills. Starting from a state of widespread illiteracy, as more schooling per child is achieved, the older adults continue to proceed through life with little or no schooling, whereas the children on entering adulthood are the beneficiaries of the additional schooling. Accordingly, individuals who are now ages 45 to 65 have the amount of schooling they had two decades ago. For young adults, ages 20 to 40, the level of schooling is currently considerably higher than it was for the same age class two decades ago.

Education is not mainly consumption in the sense that it is not undertaken primarily to obtain the satisfactions of attending school. The public and private costs are incurred deliberately to acquire a productive stock, embodied in human beings, that will provide future services. The acquisition of this education is an investment in human capital. As already noted, education enhances the entrepreneurial capacity of individuals. Studies of agricultural productivity provide the best evidence, mainly because the data are better than they are for other types of economic activity. Welch's recent essay[16] is a further contribution extending the analysis of the role of human capital in agriculture.

The value of the contribution of the work that very young children do at home and on the family farm and the effects that this cost component has upon school attendance are addressed in research by Makhija[17] and in recent studies by Shortlidge[18] and by Rosenzweig and Evenson.[19]

It is easy to overlook the strong private demand for education in low income countries. It is difficult for most observers from an affluent country to explain the inordinate secular growth in private demand for education in these countries. Governments are not compelling students to attend colleges and universities; on the contrary, despite the increasing number of higher education institutions, the demand for admissions exceeds by a wide margin the supply of places. The study by Rudolph and Rudolph leaves little room for doubt that in India since independence admissions have been very much rationed. Even for one who is aware of the proliferation of colleges and universities in the United States, it is difficult to comprehend what has been occurring in India. In 1950-51, India already has 695 colleges and twenty-eight universities; as of 1973-74 there were 4,308 colleges and 104 universities.[20] The implied increase in the private demand for higher education is extraordinary. At the elementary and secondary level, the story is in many respects quite similar. It is all too convenient to argue that the increases in enrolments at these levels have occurred as a consequence of compulsory school attendance laws. Surely, the determining factor has been the private demand for education. Parents have been making enormous sacrifices in order to provide education for their children. But we forget that this was so long before the turn of the century for many parents in the United States, especially in the case of rural people when there was much farm work that children could do. The increases in enrolment over two recent decades in India are shown in Table III.2. Compared to the 69 per cent increase in children, age 6 to 10, primary school enrolment rose by 217 per cent. For children ages 11 to 14, the percentage increases in enrolment have been even larger.

The implications of expenditures on education in determining the rate of savings requires additional elaboration. Because education is primarily an investment in future earnings and satisfactions, it is a serious error to treat all expenditures on education as current consumption; education is not like food. Increases in expenditures on education that are associated with population growth are

Table III.2 Population and enrolment increases, India

	1950/51		1970/71		1973/74	% from 1950/51 to 1970/71	
Population (millions)							
1 Total	361		548		580	52	
2 Age 6-10	44.5		75.2		n.a.	69	
3 Age 11-14	32.0		51.0		n.a.	59	
Enrolment (millions)							
1 Primary	18.7		59.3		63.2	217	
2 Middle	3.3	4.8	13.4	20.6	14.7	306	329
3 Secondary	1.5		7.2		7.5	980	
4 Post-secondary	2.0		5.2		n.a.	160	
5 University	0.17		1.95		2.23	1,047	

Source: Population estimates for 1950/51 and 1970/71 are from the 1951 and 1971 census of India and for 1973/74 from Reports on Population and Family Planning, Population Council, New York. Enrolment estimates are from Government of India Planning Commission, *Draft Five Year Plan 1978-83*, 1978, p. 226, except for post-secondary which is from the Ram-Schultz paper.

not 'welfare' expenditures, a burden on the state and a use of resources that reduces 'savings' that would otherwise be available for investment.

Expenditures on education are a substantial fraction of national income in most countries. What is less well known is that these expenditures are large relative to the conventional national accounting measures of savings and investment that exclude expenditure on schooling. Taking India as an example (as Table III.3 shows) the proportion that educational expenditures bear to national income is not only large but it has increased substantially over time. It should be noticed that the private costs, represented by the value of the time that students devote to their education, is three times as large as the public expenditure on education.

2.3 *Higher education and research*

The dynamics of development depends in no small measure on the contributions from on-going research. Many critics of higher education in low income countries err in undervaluing the contributions of research to economic growth. It is imprudent to argue that if there 'must' be research, let the rich countries indulge in this form of 'conspicuous consumption'. Expenditures on Research and Development are of course large in high income countries. But what is too often overlooked, even by those who see the value of research, is that low

Table III.3 Investment in education relative to national income 1950/51–1970/71, India

	1950/51	1970/71
1 National income in billion rupees, current prices	95.1	344
2 Public education expenditures in billion rupees, current prices	1.1	10.8
3 Private opportunity cost of students' time in billion rupees, current prices	3.9	27.9
4 [2] + [3] as a per cent of [1]	5%	11%

Source: Based on the Ram-Schultz study.

income countries must also acquire a substantial research capacity. They must be able not only to take advantage of the advances in research elsewhere but also to serve the unique requirements of their own economy. Fortunately, despite the critics, the research achievement of a considerable number of low income countries is impressive. The list of research activities is long and expenditures for research are not small given the resources of these countries. There are specialized research institutes, research units within governmental departments, industrial research, and on-going university research. The scientists and technicians engaged in these various research activities are university trained, some of them in universities abroad. The research areas include, among others, medicine, public health (control of communicable diseases and the delivery of health services), nutrition, industry, agriculture, and even some atomic energy research. I shall elaborate on agricultural research because I know it best and because it is well documented.

Indian expenditures on agricultural research between 1950 and 1968 rose from 52 to 177 million rupees, in constant 1968 prices, and this expenditure as a percentage of the value of agricultural production increased from 0.07 to 0.71 per cent.[21] Evenson and Kislev traced the agricultural production effects by states within India and they estimate the rate of return to this investment in research to be 40 per cent.[22] It has indeed been a profitable public enterprise.

The founding and financing of the International Agricultural Research Centers is an institutional innovation of a high order. The Rockefeller Foundation in co-operation with the government of Mexico first launched this type of venture. But these centres, good as they are, are not a substitute for national agricultural research enterprises. Table III.4 gives a flavour of the size and the remarkable increases in the number of agricultural scientists between 1959 and 1974 in twenty-two selected low income countries. Since the cost per scientist differs widely from country to country, the 'scientist-man-years' are more telling than expenditures. All told the number of scientist-man-years devoted to agricultural research in these twenty-two countries increased more than three times during this recent 15-year period. By 1974 it had become a corps of more than 13,000 scientists, ranging from 110 in the Ivory Coast to 2,150 in India. These agricultural scientists are the product of higher education.

Table III.4 Agricultural research expenditures, scientist-man-years and publications selected low income countries, 1959 and 1974

	Expenditures in constant 1971 US $ (in thousands of dollars)		Scientist-man-years		Average annual publications
	(1959)	(1974)	(1959)	(1974)	(1969-73)
Argentina	12,000	24,000	320	880	85
Brazil	4,800	48,800	200	2,000	130
Chile	720	4,390	32	192	26
Colombia	6,000	13,300	200	870	36
Mexico	2,160	9,760	190	1,000	39
UAR	4,800	8,950	400	800	165
Ghana	1,440	2,440	60	140	25
Ivory Coast	2,400	5,130	40	110	12
Nigeria	6,010	16,270	110	300	63
Senegal	1,560	3,250	45	160	4
Kenya	610	3,660	25	280	30
Iran	1,800	14,640	170	500	34
Turkey	2,040	9,760	55	580	23
Sri Lanka	1,320	2,440	50	130	18
India	10,570	26,030	1,150	2,150	1,278
Pakistan	960	2,030	120	280	90
Indonesia	240	3,420	15	380	13
Malaysia	1,440	4,880	40	240	27
Philippines	1,800	5,210	200	620	70
Thailand	660	4,880	150	725	18
South Korea	1,080	2,440	300	650	37
Taiwan	840	2,360	250	400	60
Totals	65,250	218,040	4,122	13,387	2,283

Source: Boyce, J. K. and Evenson, R. E., ***Agricultural Research and Extension Programs***, New York, Agricultural Deveolopment Council, 1975, from Table 2.1 and Appendix II.

A comment is called for on the numbers of publications shown in the last column of Table III.4. Annual publications reporting agricultural research results by country are by no means the best measure of performance. Rate of return studies of the type that Evenson and Kislev did for India are vastly better, but until more of such studies are at hand publication counts provide some useful information.

To sum up the thrust of this section, it is that the achievements of various low income countries are of major importance in understanding the dynamics of development that characterizes these countries. Higher education is involved in each of these achievements. The stock of health capital has been augmented very much. The increase in life span is an unprecedented accomplishment. The increase in the stock of educational capital per capita is also a major achievement. Entrepreneurial capacity has vastly improved. The number of scientists and technicians engaged in research activities in these countries has risen rapidly during recent decades.

3 Expectations versus Possibilities

Higher education seemingly is not meeting the expectations of the proponents of the New International Economic Order (NIEO). We must consider the reasons for this inconsistency between the contributions of education in many low income countries and the expectations of these proponents. Their expectations are revealed in their inventory of the failures of higher education. It is said that higher education in low income countries is not relevant to the social 'needs' of these countries. It is said that higher education increases social inequality by creating elitism in these societies. Higher education is even blamed for the rural exodus. Unemployment of college and university graduates is another part of the indictment. From these points of view, critics conclude that it is an understatement to say that higher education and organized university research in low income countries has become obsolete. The opposition between this perspective and my position arises primarily out of a difference in what is expected of higher education.

Endeavours to implement expectations that exceed what is possible result in distortions in the allocation of resources. Recognition of the limits of what is possible is therefore necessary in any analysis of expectations. Such an analysis is equally applicable to the production of firms, households, or industries. Wherever products or services are produced, the production possibilities are always limited by the available resources, by the ability of human agents, and by the organization of production activities. For instance, although the production possibilities of farms in the Punjab of India have increased greatly during the last two decades, they are nevertheless much below those of Iowa farms in the United States. Higher education is also always limited by the availability of resources, the quality of the faculty and the organization and administration of colleges and universities. These limitations are not a consequence of esoteric factors. In fact the production possibilities of higher education are severely limited in systematic and measurable respects.

Expectations, however, in the case of higher education, appear to be virtually unlimited when one considers the statements of many critics. But this characterization of expectations does not apply to faculties or to students; nor is it applicable to the administrators of colleges and universities. Although the expectations of governments are often less constrained by the realities of the relevant production possibilities, they are in general far less extreme than the expectations of many experts.

I shall distinguish between two approaches to what is expected and to what is possible in higher education. I shall first consider the approach that gives rise to the problem of the extraordinarily large gap between expectations and possibilities. That approach is propelled by ideas and social thought that are strongly committed to the perfectability of man and of society. Its normative objective is an ideal society, a Utopian world in which people would not be selfish and competition for scarce resources would not be required. By comparison, the second approach postulates a society and a polity that encompass the infirmities of human nature, the selfish and ambitious behaviour of people, and the behavioural struggle (competition) of people to acquire, hold, and use scarce resources. The normative objective of this approach differs significantly from the Utopian, ideal society objective. An important part of the difference is that the second approach relies on actual observable behaviour and its implications are for that reason testable. It is not restricted to economics. It is also essential in analysing political behaviour.

In economics, for the purpose at hand, this approach is unglamorous, matter of fact, and mundane. It is a behavioural analysis to determine the observable demand for, and supply of, higher education under various conditions. The supply is constrained by the production possibilities of colleges and universities; and the demand is constrained by the costs of acquiring the services of higher education and by the income of parents, students, and governments. That it is useful in analysing the politics of education is evident in the book by Rudolph and Rudolph. In that book, Susanne Rudolph is aptly quoted by Gould:

> We do not assume . . . that there is such a thing as an educational system free of political intervention; nor do we assume that such a thing would be good. In a democratic society and in educational institutions that receive government funds, there will be political influence. . . . The real questions focus on distinguishing what type of political pressure and politicization is benign and what is not, . . . whether education purposes are subsumed by the political system, or whether politics becomes a means for strengthening or redefining educational goals.[23]

The two approaches presented above differ greatly with respect to expectations pertaining to education.[24] It is imperative to be fully aware of the difference between them. Much confusion and controversy arises from the failure to make this distinction.

I am keenly aware that the demand and supply analysis of an economist applied to higher education is an anathema to some professional educators, to many governments, and above all to those critics who are strongly committed to the first approach to higher education. One proceeds at his own peril in discussing the substance of these expectations and their feasibility. The conventional hedge is to camouflage one's own values and wear the mantle of academic innocence. Let me proceed unprotected!

1 On the normative grounds peculiar to advocates of certain types of Utopias, higher education should eschew the sciences and their technologic offsprings. The achievements of a goodly number of low income countries, as I have shown, have in no small part been possible by advances in the sciences and associated technology. I find this particular Utopia untenable.

2 A more pervasive normative expectation of the devotees of certain ideal societies is that higher education should support wholeheartedly, without reservation and with no criticism, the government of its home country – be it communism, socialism, liberal democracy; or a centrally controlled or a capitalistic economy. This expectation, however, is rarely evoked even-handedly. More often than not it is expected that such criticism by academic scholars is warranted in capitalistic countries but that it should be off limits in other countries. For the government of any country to take a jaundiced view of the criticism by foreign scholars of its internal affairs is understandable. But woe unto the country that forecloses the criticism of its own scholars. All governments make mistakes. Internal scholarly criticism is essential in identifying such mistakes, in analysing their origins and consequences, and in indicating the changes required to correct them. To propose that there be no scholarly criticism in this area of human affairs is counterproductive.

3 Social reforms have become the order of the day. Many reforms have been long overdue. In high income countries where subsistence of the poorer people is no longer a pressing issue, there is a widespread public commitment to reduce inequality in the distribution of personal income. Most countries sooner or later learn that it is more difficult than had been anticipated to make large income transfers without seriously impairing the efficiency of the economy. Thus, modified or alternative reforms to achieve this purpose are not only called for but are being devised. But the equity-efficiency[25] issue is far from settled in either rich or poor countries, although the options available differ greatly between them. Discrimination prevails by sex, colour, language, religion, ethnicity and citizens v. non-citizens. There are also reforms that seek to reduce pollution, to increase the safety of work places,

and to improve health. Many reforms are needed. The issue here pertains to the expectation that higher education should produce reformers and that colleges and universities should become active reform agents. But history in the United States and elsewhere has shown that however 'liberalizing' college experience may seem to be, students are not transformed into reformers by mere instruction. Students' ideas of a good society and their commitment to reforms are rooted in their personal values, which are only marginally influenced by education. The normative expectation that higher education can inculcate new values that eliminate the self-interest of students exceeds greatly the ability of colleges and universities even if this were desirable.

4 The last expectation that I shall belabour pertains to research in universities. The issue here is: Should the purpose of scientific and applied technical research be to achieve advances in the sciences and in technology that will solve the problem of the inequality in the personal distribution of income? My comment on this particular normative expectation is restricted to agricultural research. In this area, for example, it is impossible for plant breeders to produce superior varieties of wheat and rice that will grow only on small farms. The equity problem pertaining to small v. large farms, like the income distribution problem in general, is a political problem in the fundamental sense that meaningful solutions depend on public policies and programmes. Science cannot solve this problem.

The founding and the size of colleges and universities, their internal organization and administration are important issues. So are the management interventions of governments.[26] The allocation of public funds to educational institutions inevitably calls for accountability in the uses that are made of these funds. With regard to political interventions, it is essential to distinguish between accountability – including interventions to strengthen and redefine educational goals – and the politicization of higher education that distorts the real functions of higher education. Nor are the interventions of some private interest and local public bodies always benign. To treat these issues adequately would call for another major essay. These issues are fortunately examined with care, and competently, in the case of India by Rudolph and Rudolph.[27]

The price tag that I have placed on higher education will undoubtedly please no one. Pricing it will be seen as indulging in bad taste, for it implies an auction suited only to property and commodities. Academic scholars and students resent being priced. So do governments when it comes to evaluating the effects of their interventions in higher education. Critics see their higher education expectations as priceless. Nevertheless resources are and always will be scarce, and for this fundamental reason prices inevitably matter regardless of how society is organized.

4 Acknowledgements

I am indebted to C. Arnold Anderson, Mary Jean Bowman and Charles M. Hardin for clarifying and cogent comments.

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6 From 1960/61 through 1963/64 the universities of India accepted 185 doctoral theses in agriculture. Doctoral theses accepted in engineering-technology, commerce and medicine were seventy-eight, sixty-nine and fifty-seven respectively. See Rudolph, S. H. and Rudolph, L. I., op. cit., p. 42.

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(1956–61) had a much larger favourable effect on health than did the programmes undertaken later. The programme to suppress malaria tells the story. Official data indicate that the incidence of malaria dropped from 75 million in 1952–3 to about 1.1 million in 1959–60. But the malaria programme suffered a setback after 1965, although the incidence of malaria did not revert to the old level. Further tests clearly indicated that the near eradication of malaria during the early part of the decades under consideration contributed significantly to increases in agricultural production.

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22 See Table 6.3 and p. 101 of their study.

23 Rudolph and Rudolph, op. cit., p. 95. Although the book carries the title, *Education and Politics in India*, the analysis at many points deals with the scarcity of resources and the value of education with a fine appreciation of the underlying economics.

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IV Guidelines to Third-level Education in Developing Countries in order to assist in the Creation of the New International Economic Order

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Abstract Tinbergen emphasizes the need to integrate socio-economic policies and educational planning, particularly as regards third-level, or higher, education. This integration must evolve within any society's plan for maximum social welfare. As reflected in the New International Economic Order (NIEO) any one country's strivings in this arena must take into account not only its own resources – natural resources, human skills and experience, physical capital stock – but also resources and utilization patterns of its neighbours and, indeed, of the entire world. From this perspective it becomes apparent that developing countries must go beyond past dependencies upon developed countries and through the development of interdependencies among each other, to attain self-reliance. In third-level education, especially as it relates to manpower planning, such self-reliance may appear either inefficient at present or too remote for full attainment. However, errors in the past in transferring technologies from developed to developing economies, and in transplanting technicians trained – technically and philosophically – in developed countries to developing ones, have not made the world's poor any less poor – especially in the developing countries. Tinbergen asserts that these processes occurring in each country must at some level harmonize with a worldwide planning effort implicit in the NIEO proclamation. Such planning should focus on a long-range perspective of one generation (25 years). This chapter is structured around four issues faced by national planners of third-level education: defining their own country's internal industrial structure and its contributions to the NIEO; dealing with the sectoral structure of their economy (as it now exists or is envisioned for the future); identifying and modulating the demand for third-level manpower; and, finally, adapting sources of available statistics to the development of additional information and research as needed.

1 Introduction; Structure of Chapter; Summary and Conclusions

1.1 *Subject to be treated; need for careful planning of education, especially of third-level education*

As indicated by the title of this chapter, it proposes to formulate some guidelines for the planning of third-level – or 'higher' – education for governments of developing countries, especially with regard to the contribution such countries may make to the New International Economic Order (NIEO). This order has been adopted as the goal of world development by the Sixth and Seventh Special Sessions of the General Assembly of the United Nations held in 1974 and 1975. Ever since it has been the subject of a large number of studies, reports and an 'on-going dialogue' as the Report to the Club of Rome 'Reshaping the International Order' puts it.[1]

Since higher or 'third-level' education is an expensive activity to all countries and since it has been misdirected in several of them already, it requires careful planning. As part of a country's general planning it should be based on the general aims of socio-economic policies and these, in turn, on the attainment of a maximum of social welfare over a period to be specified and under a number of restrictions imposed on mankind by its environment and its own human characteristics and limitations. Inagaki[2] has presented good arguments to choose a period of one generation for the period dealt with in planning; this means about twenty-five years, or the period up to AD 2000. Any country's socio-economic aims can be subdivided into national and international aims and among the latter the attainment of the NIEO is supposed to be one, directly or indirectly, in the country's own interest. The requirements made by this attainment to the nation's activities, in particular its third-level-education process, will have to be made explicit in this chapter (cf. Section 2). Planning of third-level education constitutes part of education planning in its totality. Although impressive progress has been made recently in this field – to which the International Institute for Educational Planning (IIEP) has contributed considerably – much remains to be done, especially in order to integrate it with labour market or labour resources planning. This chapter offers some modest contributions, it is hoped.

1.2 *Structure of chapter*

We propose to discuss the subject matter set out in Section 1.1 under the following headings. In Section 2 the socio-economic plan as a whole for the country considered will be discussed. It will have to fit into the development of the world at large and a few general aspects of that development and the country's role in it will be taken up. Next, some of the concrete contributions the country can make to the establishment of the NIEO will be discussed. A first impression of a country's desired manpower structure can be derived from both the country's internal industrial structure and its contributions to the NIEO. Because of the uncertainties involved, a number of alternatives must be formulated. In order to alleviate the national planners' heavy task, guidelines that may and should be given by international organizations will briefly be mentioned. One special problem facing developing countries is the supply of a sufficient number of nationals to occupy the posts needed; this can only be done over a certain period of time its optimum length constitutes an unknown element. Finally, co-operation in matters of third-level education between neighbouring countries in a similar cultural or linguistic area will be briefly discussed.

Section 3 will deal with the sectoral structure of the economy to be opted for, the choice of technologies available in each sector, and the ensuing demand for manpower of various educational levels. The relative importance of the main levels – first, second, and third – will be discussed, in its dependence on the country's industrial structure and cultural pattern. It is assumed that the cultural pattern will develop and a few words about this aspect will be added. Finally the possibilities to substitute, within the same activity sector, one level of education for another, will need consideration in order to optimize the choice.

In Section 4 the question will be taken up, whether and how this demand for third-level manpower can be met by its supply, originating from the education processes, formal and informal. In case there is no equilibrium between demand and supply, short-term and long-term measures to adapt supply to demand will have to be advised. Among such measures certain types of incentives in order to attract personnel to the jobs where needed will be proposed. Also the complementary task incumbent upon education, namely to help reduce income differences so as to further social harmony, must be elaborated. Another part of the adaptation of supply to demand may be obtained by the employment of expatriates and some problems related with this method will be discussed. Finally, the role of technical co-operation with developed countries in the field of third-level education must be touched upon.

Section 5 provides the reader with some information on the sources of statistics already available and possibly useful to the planner of third-level education. The sources mentioned imply both those for general planning and those for individual sectors of production and of education. Some sections (i.e. Sections 5.6 through 5.9) will deal with research methods available for use.

Section 6, finally, discusses additional information or research needed and recommended. It ranges from a different use of existing information (Section 6.1), to additional inquiries (Section 6.2), to new methods (Section 6.3), and to the possibility of learning from past mistakes (Section 6.4).

1.3 *Summary and conclusions*

As a matter of course the concrete results of planning third-level education will vary widely among countries. In this chapter only general qualitative conclusions can be offered. The need for third-level manpower depends essentially on the nation's industrial structure and, more particularly, on the service activities in research, education, and government it prefers to develop. An additional need for such manpower will arise from the role the country wants to play in the decision-making process in international organizations. Separate inquiries into the latter question seem appropriate. Due attention should be given to the most appropriate technology for each sector of the economy, taking into account the country's endowment with natural and human resources, as well as the substitution possibilities between alternative types of education for given tasks. Reliance on the country's own creative manpower can be facilitated by education curricula tried out in the country. In the early stages of development the employment of expatriate manpower may accelerate the availability of educated nationals. Especially small developing countries should seek the co-operation of neighbouring countries in fields where the number of students is likely to be small. Demand for various types of manpower depends not only on innate cognitive qualities but also on the innate non-cognitive qualities; supply should be geared as much as possible to both types of qualities, whose total number may vary between about four and twelve. Cultural values must co-determine demand but the dynamism of culture should not be overlooked. Moreover, in almost all cultures less attractive elements can be identified and may be a subject for deliberate change.

The supply of educated manpower should originate from both formal and informal education, implying training on the job as part of the process. Curricula should be geared to concrete needs. The interests of low-income groups should be given a high weight priority. If supply does not match demand short-term and longer-term measures should be taken. Among the former may be mentioned:

(a) regular information on the state of the labour market;
(b) training or retraining for jobs in which there is a shortage, possibly training in existing production units; and
(c) assistance by universities to their alumni to find appropriate jobs.

Longer-term measures may be:

(a) a systematic search for talent reserves;
(b) particular ways of motivating students; and
(c) the introduction of concrete incentives to filling jobs where a shortage threatens.

The education process, especially the third-level one, has as an additional social task to help establish a more equitable income distribution, without excessive privileges to the highly qualified. For a period of transition, and in order to profit from fresh ideas, expatriates may play a useful role.

In Section 5 a number of sources of information can be found, not in need of a summary; similarly in Section 6 further information to be collected as well as further methods of research are recommended. Among other conclusions we show that some material from IIEP enquiries can be used in more relevant ways and that the material can be made more relevant by relatively small additional efforts. This implies that the material is even more important than it might have appeared to be at first sight.

2 The Country's Long-term Plan

2.1 *World plans as a starting point*

As argued in Section 1, planning for education must be based on the country's general socio-economic plan for a period up to AD 2000 or a similar period. In turn, the country's long-term plan should be based on some notion of where the world at large is going. Thanks to a number of pioneering attempts we begin to have a few alternative approaches. The extremes are based, on the one hand on mechanical extrapolations of the past and, on the other hand, on wishful thinking. Since for the totality of developing countries a continuation of past rates of growth would lead to disaster, an acceleration of growth is simply a must. This has been assumed in the best available world planning attempt so far made.[3] Of the eight scenarios formulated, the authors chose their 'Scenario X' for the most detailed figures published. An important characteristic of this scenario is a reduction in the ratio of GNP per capita between developed and underdeveloped countries from 12 to 8. The growth rates between 1970 and 2000 of population and GNP per capita for 'Scenario X' are given in Table IV.1.

Table IV.1 Average growth rates of population (p) and GNP per capita (y) between 1970 and 2000 for Scenario X

Countries	p	y
Developed	0.7	3.3
Developing	2.3	4.9

The other scenarios are mainly used for comparison with 'Scenario X'. Thus 'Scenario A' reduces the ratio of GNP per capita between rich and poor countries only from 12 to 11; 'Scenario C', on the contrary, from 12 to 7. In the section on food, comparisons are made with 'Scenario G' assuming food self-sufficiency in low-income Asia. Dealing with mineral resources an optimistic variant 'Scenario H' is shown. In the section on international trade 'Scenario M' with some more optimistic assumptions on trade of medium-income Latin America, low-income Asia and Arid Africa, fully specified in Table 69 is compared with 'Scenario X'. In the treatment of balance of payments problems alternatives 'Scenario R' (with optimistic assumptions on 'aid' and capital exports by developed countries) and 'Scenario M' are again compared with 'Scenario X'. 'Scenario D', assuming high instead of medium population growth everywhere, is brought in here also.

Detailed production figures for seven developing regions are presented in the Numerical Results on pages 88, 93, 98 and 103 of Leontief *et al.* These figures refer to output levels of thirty-five sectors for the years 1970, 1980, 1990 and 2000. Sectors include five agricultural ones, fish catch, mining, twenty-two manufacturing sectors, utilities, construction and four service sectors (trade, transportation, communications and other services).

This constitutes a first set of figures from which the planners of the country under consideration may start to set up their national development plan up to AD 2000. Not only can they use the figures for the region – among the seven mentioned – in which their own country is situated; they can also cross-check the export and import figures shown by Leontief *et al.* and make their own additional assumptions on what part their own country is going to play in the execution of the regional plan – even though this is to be considered as indicative rather than imperative.

The country's planners may also give thought to whether they find Leontief's figures either too bold or too modest. Contacts with other countries within and outside the region may help to clarify some of the issues at stake. There is a good deal of chance that in the meantime world planning may have made further progress.

One type of macrocheck made on the figures of the Leontief *et al.* study may be found in a volume[4] dedicated to Jean Fourastié, who gave particular attention to the role the macro sectors are playing in the development of economies.

Other checks may be undertaken with the aid of figures by country given by the World Bank in its World Development Report 1978[5] in which especially the Annex 'World Development Indicators' is helpful. These in turn may be completed by Kravis *et al.*[6] where nominal national incomes for more than 100 countries have been transformed into real income estimates.

Finally it will be wise to compare the general trends in these figures with the Latin American view expressed by the Bariloche Foundation.[7]

2.2 *Sector plans as a second source*

Cross checks of a still different character may be found in worldwide studies for some strategically important sectors. The first example to be mentioned here regards food or agriculture – by far the most important sector for almost all developing countries. The best study available at the moment of writing is known as MOIRA: A Model of International Relations in Agriculture, based on a joint effort of the Free University of Amsterdam and the Agricultural University of Wageningen. A popular summary in Dutch is available[8] and technical reports in English will soon be published.

Depending on the structure of the country's economy, also other sector studies in depth may be useful, such as those on energy.

2.3 *New World problem areas to be taken into account*

The uncertainties connected with long-term planning have increased considerably after the discovery, by a larger section of public opinion, of what are now sometimes called the 'new scarcities'. In the year 1972 the problems of the environment had reached the stage where a world United Nations conference

(Stockholm) on that subject was convened. The decision of Organization of Petrol Exporting Countries (OPEC) to adjust the price of oil, in 1973, brought the problem of the possible future scarcity of energy to the fore. The World Food Conference in Rome and the World Population Congress in Bucharest, both in 1974, reminded the world of the threatening limits to what the earth can carry in this respect. During all these years a series of conferences on the Law of the Sea illustrated elements related to the new scarcities. Although some futurists had given thought to various of these elements, quantitative treatment of them was neglected either by oversight or by an *a priori* type of optimism characteristic of many economists and technologists.

This does not apply to the Leontief and Garbut *et al.* studies discussed in Sections 2.1 and 2.2. Part of the pollution process and of the food problem have been covered by these studies; 'part', also because the time horizons are AD 2000 for the former and the moment when world population would have doubled since 1970 for the latter. As for the food problem, the need for higher food production in or near the developing world has been recognized and can be inserted in developing countries' plans. Most energy research is concentrating on the developed countries' needs. Since most of the developing countries have the potential to play a role in the extended use of solar radiation, an adaptation in this sense to energy scarcity may be a wise thing to do, but then it requires an accelerated and co-operative effort not clearly envisaged so far.

2.4 *Requirements to help establish the NIEO*

In this study we have been requested to concentrate our attention to additional requirements emerging from the need to reshape the international order. The following aspects of the contributions that can be made seem essential:

(a) In the NIEO a larger part of the decisions on international socio-economic policies will have to be made by representatives of developing countries. High-level manpower will be needed to this end.
(b) Developing countries must aim at higher levels of self-reliance, by country or collectively. This may require various types of manpower.
(c) Development will have to be accelerated, as we underlined already; here too there are implications for labour resources.
(d) As soon as possible a number of basic needs will have to be satisfied, especially of those under the poverty line.
(e) As far as possible the attractiveness of work to be done must be improved, among other means by a better correspondence between the type of work and the person's capabilities.

The consequences of these requirements will be discussed in Section 3.

2.5 *Substitution between types of education to do a given job*

Manpower planning usually will start by trying to define the jobs in the various sectors of the economy that have to be filled. A given job sometimes fully determines the education needed to perform well in that job. But this is not always so. For a number of tasks there is a choice with regard to the education required. Such substitution possibilities must be carefully studied in order to save on the scarce services of education at various levels. Clearly the choice depends on a number of characteristics of the country's population. Also this subject will be taken up in Section 3.

2.6 *The need for alternative plans*

The difficulties and uncertainties that long-term planners faced are enormous; this needs hardly to be said. As a consequence, any figures they produce are subject to a large margin of error; but the errors are different for different phenomena included. Some variables are more uncertain than others. The best way to give the reader – and the author! – some idea about the degree of reliability is to construct a number of alternatives alongside that which is felt to be the most desirable set of figures. The alternatives, when set up in a systematic way, at least have inner consistency. It will then become clear which of the variables estimated are the least certain and which others still have some degree of reliability. This is common practice to planners. Mention should be made of a particularly sophisticated reconnaissance of this kind, applied by Thissen[9] on the well-known Meadows model, used in the First Report to the Club of Rome.[10]

2.7 *The need for directives at the world level*

Much of the basic work to be done for any country's long-term plan runs parallel with what other countries need. This implies the likelihood of considerable duplication, unless the existing international organizations make available the results of a number of studies on the future already done and repeated at regular intervals. For shorter-term plans an invaluable mass of data is already being made available by the World Bank (see Ref. 5). For longer-term plans we already mentioned and used the United Nations study by Leontief *et al.* (see Ref. 3). We should add the work in progress from the secretariat of the United Nations Developing Planning Committee. Almost all the United Nations specialized agencies have been working on similar studies for their particular area of responsibility.

At present these data are published without any decision-making activity connected with them. If a real world order is to be established a minimum of decision-making will have to go with them. For the foreseeable future the best we can hope for is, perhaps, a recommendation, formulated by the Economic and Social Council, prepared by the United Nations Development Planning Committee and approved by the United Nations General Assembly.

2.8 *Localization of leading posts*

It is a natural desire of independent nations that after their liberation leading posts in their societies are occupied by nationals; the process of replacing expatriates by nationals will be called localization. It stands to reason that the speed of the process of taking over is influenced by the number of nationals trained to perform the tasks implied. Especially in Africa a very limited number of third-level educated persons was available at the moment of liberation. Of course it is not only a question of formal education. Some people with lower levels of education may have good leadership capabilities. Yet, whether formal or informal, a minimum of training will be necessary in order that the tasks are carried out satisfactorily. The danger baptized 'rush growth' by Kornai[11] must be avoided. Later (Section 4) the reader will be reminded of some consequences of an optimum localization programme.

2.9 *Co-operation between neighbouring countries*

Higher education is expensive in comparison to the average income of many developing countries. This makes it imperative to maximize the efficiency of that education process. Among the specializations customary and necessary in higher education some will only ~~need~~ a tiny flow of students per year from any single country. In such cases co-operation between related countries provides an important contribution. By 'related' we mean geographically close as well as culturally related. An important cultural element is the language. There are several parts of the world where the same language is spoken in a very large area covering a number of different nations. Spanish-speaking and Arabic-speaking countries are clear examples. For lack of another solution, not the people's own but their second language can be used as a criterion; in Africa, English and French are second languages inherited from the colonial era which may be useful for the purpose. The Indonesian language is one of very few second languages of non-Western origin which has succeeded in unifying a large area into one nation.

3 Sector Structure, Technologies and the Demand for Labour Categories

3.1 *What sector composition is optimal?*

Any long-term socio-economic plan for a nation should indicate what sectoral composition of the country's production will optimize the population's welfare under the constraints facing the nation. These constraints are, first of all, those pointed out by Heckscher and Ohlin concerning the relative endowments with various factors of production, such as natural resources (including energy sources), human skills and experience, and physical capital stock accumulated in the past and possibly available from foreign sources (loans as well as grants and direct investments).

The constraints mentioned are less precise than might have been thought because of the possibilities:

(i) to use at a lower or higher annual rate the stocks of exhaustible natural resources; and
(ii) in the longer run, to add to human capital by accelerating the education process.

Moreover, the Heckscher-Ohlin theorem rightly emphasizes the importance of the relative endowments. (This means relative to each other as well as to other countries.) The country's planners must therefore use, for their orientation, a picture, however crude and provisional, of the country's endowment in comparison to that of other countries. Also they must have some indication of the relative inputs of factors of production required by all economic activities. So far we have only the first attempts at such a worldwide approach covering as many industries as possible. One is the study by Herman[12] in which all countries are grouped in eleven groups and all eighty-eight industries (as distinguished in Swedish sources) into eleven clusters. The arrangements are such that both countries and industries are ordered according to capital per employee and the size of the groups and clusters chosen in such a way that world demand for the products of the successive clusters roughly corresponds with the employable manpower available in the groups of countries. Since a number of assumptions had to be made in order to arrive at figures at all, the study can only be seen as a prototype of what is hoped will at some time be carried out with much more precision. For the time being the study provides each country with an indication about what cluster of industries is eligible so as to correspond with the endowment in capital (physical and human) and labour. Clusters are chosen instead of single industries, since some diversification is advisable anyway. The industries considered are only manufacturing industries producing tradables (i.e. products which can be traded internationally). Agriculture is not included; neither are services. Here the existing situation is taken as a basis. The World Bank figures (see Ref. 5) and Leontief's study (see Ref. 3) mentioned in Section 2.1 may complete the information.

As has already been observed, account should also be taken of the recommendation of the World Food Conference of 1974 that a sufficient part of the nation's food needs should be covered from nearby locations.

At the same time the principle of covering the population's basic needs should give some guidance regarding the quality of products to be produced or imported for the home market: luxury goods should be given low priority when basic needs of the population are being satisfied in an insufficient way.

3.2 *Choice of technology*

The choice of sectors to be developed cannot be considered without specifying simultaneously the technology to be used. As observed by many authors, a number of sectors leave no choice of technology: only one main technology is known. This applies to the newest industries rather than to the traditional ones where mankind has gone through phases of increasing capital intensity. The government planners should resist the temptation of 'prestige projects' which are more capital-intensive than is optimal for the country. In principle, optimality means that the social cost of production per unit constitutes a minimum. In principle, social costs are based on shadow prices of labour and capital and will not automatically be applied by private producers. If the divergence between private cost and social costs is considerable, special interest, tax, subsidy or exchange rate policies may be negotiated with firms starting new investments so as to remain in the neighbourhood of the social optimum.

Step-by-step information about alternative technologies has become available and it is now understood that the transfer of technology from developed to developing countries must not be a mechanical copying of the former countries' technology. The largest European transnational corporation (when characterized by the employment it provides) Philips NV, has developed adapted technology for its establishments in developing countries which has been tried out in their pilot plant in Utrecht, the Netherlands. Under the auspices of El Colegio de Mexico and its President Victor Urquidi, Professor G. K. Boon[13] made a series of studies on alternative technologies available in a number of activities, including agriculture, various sub-sectors of the garment and textile, leather and leather product, and metal working industries. It is also well known that medical services can be supplied in a number of different forms, ranging from large hospitals with a number of specialists to decentralized health centres mainly staffed with medical personnel with middle-level training, from midwives to the proverbial barefoot doctors trained in China.

Thanks to continual and expanding research in many directions, an increasing flow of new technologies and processes becomes available. In the food sector the replacement of fishing (which is comparable to hunting) by aquaculture[14] is just one illustration.

Within the United Nations family of organizations, the FAO for agriculture, UNIDO for manufacturing and Unesco for services are expanding their data banks, which are becoming increasingly available. A long series of conferences, fora, colloquia etc. has been and is being held currently. An intensive study on Tanzania[15] also stresses the need for further development of intermediate technology using, where possible, local materials.

3.3 *Some sources and figures about manpower needs of various sectors*

Since the number of sectors for which clearly different technologies are available is limited, it seems worth while to illustrate the substantial differences in the type of manpower (according to education) used in a number of sectors. Starting with the macrosectors, Table IV.2 illustrates the point with the aid of Dutch figures.

Table IV.2 Distribution of Dutch labour force in various sectors over level of education, per cent (1975)

	Elementary	Extended elementary	Secondary§	Higher
Agriculture	42	44	2	1
Manufacturing*	41	43	11	5
Trade†	37	46	13	4
Transportation, Communications	42	42	13	4
Banking, Insurance‡	15	42	29	14
Government, Social Institutions	17	43	26	14
Education	11	10	14	66
Medical services	16	28	37	20
Socio-cultural services	32	31	22	15
Research, all other services	15	27	21	37
Total active population	33	40	16	11

* Including mining, public utilities and construction.
† Including repair, hotels, etc.
‡ Including non-personal services.
§ Includes 2-year American college education.
Source: Netherlands Central Bureau of Statistics (by courtesy of Dr H. de Groot).

In view of the importance of third-level education for the services sector the latter has been shown in as much detail as available.

For the manufacturing sector a number of interesting figures are available for the Federal Republic of Germany,[16] shown in Table IV.3. These figures cover both the physical and the human capital per employee in thirty-one branches.

It is interesting to note that several of the industries showing low physical capital intensity require also relatively little human capital and are appropriate therefore in two respects as activities to be chosen by developing countries. One important condition that has to be fulfilled, however, is that imports into developed countries are not impeded by high tariffs, quantitative restrictions, or so-called 'voluntary' export restrictions by countries able to compete on the world market. The only admissible exception is the case in which the producing country uses methods too capital-intensive, given its relative scarcity of capital, both physical and human. This is against its own interest as well as against the interest of developed countries and may hence be penalized by import quota.

Table IV.3 Physical (*P*) and human (*H*) capital per employee: thirty-one industry groups in Western Germany, 1969 (in DM 1,000)

Industry group	*P*	*H*	Industry group	*P*	*H*
Mining	81	61	Printing	31	33
Chemical industries	78	56	Rubber, asbestos	29	32
Pulp and paper	82	32	Metal construction	18	41
Iron and steel	74	38	Electrical machinery	22	35
Food and Beverages	71	24	Textiles	33	20
Motor car production	46	49	Artificial fibres, plastics	25	24
Quarries, etc.	63	28	Optical instruments	19	29
Shipbuilding	36	52	Tin Plate	23	25
Air craft production	16	63	Woodworking	21	27
Non-ferrous metals	50	27	Paper processing	25	21
Steel wire, cold rolling	45	28	Chinaware	23	23
Leather production	42	26	Shoe industry	14	29
Machinery	25	40	Musical instruments, toys etc.	14	16
Glass	31	34	Leather ware	11	17
Sawing mills	47	19	Apparel	10	8
Iron and steel castings	36	29			

Source: Donges *et al.* See Ref. 16.

3.4 *The resulting demand for labour with different levels of education*

The preceding steps of long-term planning should have resulted in a set of figures indicating for each time point up to AD 2000, the number of persons with any type of education needed in the labour force. These figures could be subdivided according to other personality traits as well: people endowed, by nature and by learning, with various levels of:

(i) properties such as leadership, capability to establish contacts with others, capability to see the relative urgency of problem clusters; or of
(ii) non-cognitive qualities defined somewhat differently.

We add these other capabilities because they are as important as the cognitive capabilities, as is illustrated by recent research on the labour market.[17]

The set of figures has a great margin of error and this is why a number of alternatives must be contained in it (cf. Section 2.6). So little may be known about the non-cognitive qualities required that they may have to be omitted, on the assumption that the educational establishments involved will select their students in the appropriate way for their later jobs, or assuming that the selection of the 'right' people will be done by business or government, for the private and the public sector. This assumption is 'second best', however.

3.5 *Demand for manpower of three levels of education*

In all probability the overwhelming part of the manpower needed will be of the primary and secondary level. Agriculture will, in most developing countries, be the largest macrosector for quite some time to come, especially if food shortages are to be avoided as much as possible. Table IV.2 reminds us of the fact that even in agriculture in a developed country around 1 per cent of the labour force needs a third-level education. Similarly, even the manufacturing, trade and transport sectors in a developed country only demand 4 or 5 per cent of third-level educated labour force.

It is only in some of the 'other services' sub-sectors that a substantial demand for third-level manpower will be exerted. This manpower type by its nature shows a high degree of specialization, even during the formal training process, as is illustrated by the number of departments and subdepartments to be found in universities and professional schools.

Since satisfaction of basic needs ranks high, the weight to be given to agricultural and simple industrial products will be high and hence the demand for first- and second-level educated manpower as a percentage of total employment. The priorities will also have to be based on cultural preferences; the planners will have to be aware of these, although it should be recollected that no culture need be static and some cultures may want to adapt themselves to new knowledge and to a trend towards more humane values rather than traditional value systems.

3.6 *Substitution between education processes*

Even if the choice of sectors has been made, followed by a choice of technology – within a sector where there is a choice – a third choice remains to be made. The same physical equipment in a given sector of activity may be handled by people with different educational backgrounds (see Ref. 6). In a number of cases this may simply add a degree of freedom which can be used according to the prevailing circumstances. In other cases, this choice may help to find a less costly method of performing given tasks. Well-known examples are the possibilities of switching from one person of the third-level category to more than one of a second-level education, by a change in organization. Thus, a number of medical services can be organized differently depending on the density of a country's or region's population; or differently in rural areas an urban districts.

4 The Supply of Manpower. The Role of Education and the Adaptation of Supply to Demand

4.1 *Confrontation of demand for and supply of labour, especially third-level*

In principle, the planning procedures so far discussed finish up with figures, for each year of the period considered by the Plan, of the numbers of persons needed, subdivided according to education desired and ideally also according to other (non-cognitive) capability intensities. The reader will be aware of the distance between ideal and real possibilities. Pursuing our line of thought we must now find out whether the numbers demanded can also be supplied and by what sources of supply. There are three main sources. One is the stock of available labour of the type considered, that is, last year's stock minus the numbers who retired or died. The second source is comprised of the newly graduated nations in the field(s) concerned, whether from home universities, other establishments of higher learning or from abroad. The third source: additional expatriates recruited.

Hence it is here that the educational process as a supplier of manpower comes in. At this point the reader should be reminded of a general statement of considerable importance, namely that the labour supplied has obtained its relevant capabilities from innate (or inherited) features on which a multidimensional environment has had its effect: the impact of informal and formal learning processes. Informal processes here imply both:

(a) the impact of the family, the social group to which the family belongs (from the very beginning of life on); and

(b) the informal learning processes on the job, whether as a deliberate part of the schooling process or after formal schooling, at each of the jobs held successively.

The latter part of informal training is also simply called experience.

It is useful to add to this general statement that there is no guarantee that all those who have the innate capabilities needed have also had an opportunity to pass through the learning processes summed up. On the contrary, in most countries there are hidden 'talent reserves' which should be identified and subsequently given the opportunity to learn. Only such an educational policy will, in the long run, yield the highest human potential to the national community and the highest labour satisfaction to all citizens.

4.2 *Disequilibrium between demand and supply likely*

In most developing countries in their early phase of development the chances are high that supply will not match demand for third-level labour. In order to avoid this situation, supply should be planned well in advance, especially because the longest learning processes are exactly the ones under discussion and therefore require the longest lead time. Planning for education has a quantitative and a qualitative component.

The first step of the quantitative component consists of estimating how many students will spontaneously result from the lower level flow of students, assuming that the percentage choosing a given next level is constant over time. This method has been described most completely by Thonstad,[18] where earlier references can be found. Further steps may consist of trying to find out whether the coefficients depend on some other variables, such as the relative incomes expected after completion of a planned education process.

The qualitative component of education planning may consist of changes in the curricula of the schools in the chain the student has chosen. Since many curricula have originally been copied from education processes in developed countries, there are many good reasons to systematically revise them and adapt them not only to newer insights in education processes, but also to the different requirements of the future jobs in a developing country as distinct from developed countries.

Because of the length of the successive stages of the learning process involved, planning of the quantitative type discussed has to be undertaken long before the desired equilibrium of demand and supply can be achieved. The preparation of qualitative changes may require even more time.

4.3 *What can be done at shorter notice?*

It is natural to ask, therefore, whether means of socio-economic policy are available which enable us to adapt labour supply at short notice. There are some ways to influence those students who have no very precise careers in mind. Regular information on the labour market situation and, more particularly, its various compartments is one instrument. Information about shortages and surpluses – when they occur – are particularly useful. Surpluses are well known to exist in a country such as India. Career counselling may be improved, as discussed for Tanzania by Sanyal and Kinunda (see Ref. 15). If training on the job has already been accepted as part of the learning process, changes in the training period may be another instrument. Thus, trainees may be kept in the production unit thus postponing the completion of the formal training process. In the same spirit one can think of retraining superfluous individuals in 'nearby' compartments of the labour market. This again presupposes that there are surpluses. Moreover, and this may be a more time-consuming operation, research may be needed to find out which compartments are 'nearby'. Formulated more precisely, the problem at stake here is whether substitution between different educations for the same job is possible.

4.4 *What can be done in the longer run?*

In Section 4.2 we mentioned the time-consuming character of adjustment of supply by planned changes in the numbers of students. It seems worthwhile to come back in more detail to a remark made in Section 4.1 dealing with education in general. We pointed out that learning requires as a basis some innate (inherited) capabilities and that possibly the population contains 'talent reserves' which have not been used.

We want to specify, to start with, that the subject is hotly debated today as a consequence of interesting research undertaken by Goldberger,[19] which challenges the widely held opinion that about 80 per cent of the variance in IQ as measured in a number of samples constitutes inherited IQ. The challenge is based on doubts around material presented by Burt. We may add a second reason why the figure of 80 per cent is less decisive than often thought. It will be clear that the observed variance also depends on the variance in education processes undergone by the observed individuals. To begin with that variance may not be the greatest variance actually present at the time and places of observation. But in addition we can imagine that not yet existing and better curricula of educational institutions will be established, capable of a better education job than thus far achieved. Finally, as we already saw, IQ is not the only qualification relevant to successfully perform a number of important jobs. All this together may be interpreted as evidence that more possibilities exist than has often been thought, to offer more candidates for jobs where scarce qualifications are needed for a proper performance.

A word should be added on a phrase often used by analysts of the education process, namely 'motivation'. Whereas educators may be satisfied that this concept has a clear meaning, labour market analysts want to have additional information on to what the motivation is directed. For labour market analysis we want to know at what job the individual is aiming. Motivation of a certain intensity (e.g. to be educated as a lawyer) does not always ultimately correspond with the same job aimed at.

4.5 *What incentives may be used?*

If in some compartments of the labour market supply is insufficient (in comparison to demand), higher income will be an incentive to raise supply but also, depending on the characteristics of the function, other incentives may be available as well. Taking as an example a function in a village offering small cultural or recreational attractiveness to an academically trained extension officer, or health officer, compensation may be offered in the form of a car, or longer holidays. In this and other cases also the availability of a better dwelling may be an incentive. In other cases greater responsibility may be attractive. Clearly the type of compensatory incentives depends on a comparison between the requirements and the inconveniences of the job with the expectations of the person qualified for the job. The methods of research, especially the details of questionnaires to be used in order to obtain the relevant information will be discussed at some length in Section 5, especially because the formulation of questionnaires constitutes a problem often misunderstood (cf. Section 5.6).

4.6 *Further aims of education policy*

Whereas the primary aim of an education policy is to organize optimal teaching processes needed for society's operation, there are some other aims that need recognition. Among these we want to single out the aim to contribute to as harmonious a society as possible. More concretely, educational policies can make a contribution to arriving at a less unequal income distribution and so to a more equitable order. This idea has found application in a number of developed countries (cf. Tinbergen),[20] but there is no reason to restrict it to these nations. Research by Irma Adelman[21] shows the relevance of the development of human resources – and this is just another phrase for education – to the income distribution in developing countries, and a policy proposal based on her previous research.

One aspect of the philosophy at stake is that relative incomes of various groups in society are determined by, among other factors, the relative scarcities of the job characteristics of the various groups and that, within certain limits, those scarcities can be reduced by admitting larger numbers to the learning processes corresponding to highly paid jobs. Clearly the crucial question is whether part of a scarce quality can indeed be learned; if it were completely innate, this is not possible. As we discussed in Section 4.4, an intensive scientific debate is going on on this very question. It is too early to formulate with any precision what the contribution to equity by the education policies may be, but this aspect should not be overlooked.

4.7 *The role of expatriates*

In situations where supply is insufficient to satisfy demand for third-level educated individuals another solution may be to hire more expatriates. One can even think of situations where the quickest way to liberate the country from expatriates consists of hiring more of them in the beginning, especially as teachers in politically 'safe' subjects or to fill other places of a purely technical character. Some aspects of this 'localization problem' have been dealt with in a macroeconomic way using the Correa-Tinbergen model[22] (cf. Tinbergen[23]).

Another reason why expatriates may be hired is the possibility, mentioned also in an IIEP publication (see Ref. 15) that they may bring new ideas, worth being tried out. The French saying may apply here that 'du choc des opinions jaillit la vérité'.

4.8 *The role of technical assistance*

In international co-operation for development an important role has been attributed from the start to technical assistance, or, rather, technical co-operation. To be sure, in this area too we have been learning from our own mistakes. The mechanical transplantation of inappropriate technologies from developed societies is a case in point. Yet in the field of third-level education, with its many ramifications and specializations, international co-operation may be effective. It may take many different forms. For subjects in which a few countries have a broad experience, courses for foreign students may have the advantages of economies of scale and of specialization. Thus, courses in Hydrology in the Netherlands make sense because of the long-standing experience of that country in its struggle against water. Metallurgical Engineering is a speciality of some of the great steel producing countries, or of countries like Sweden, which have specialized in particular alloys. Far less specialized third-level education courses may preferably be given in developing countries, by expatriate teachers specialized in the subjects to be dealt with. Expatriate teachers will not be needed if a group of neighbouring countries decide to jointly organize courses in order to reap the economies of scale.

A rapidly increasing volume of work, both in research and in training, is being done by UNIDO, as this organization's newsletter currently illustrates. Also the World Bank Group has accumulated a mass of information from its ever-increasing experience.

5 Sources of Information Available

5.1 *Introduction to Section 5*

In the preceding sections we have discussed the logic of planning demand and supply of third-level educated manpower with special reference to needs connected with the NIEO. These needs may be very different for individual developing countries. These needs will depend on the political role the country is able and willing to play; they will depend on the third-level educated labour force it already has at its disposal and they will depend on its own priorities. Manpower and education planning are themselves in rapid development and the impressive performance of the IIEP bears witness to our growing understanding of its complications. A similar statement is valid for the problems of the international order, whether economic or more general. The number of unsolved problems surrounding this future order is overwhelming. As a consequence of the huge and even expanding agenda of research concerning both aspects – manpower planning and NIEO – all concerned have to make attempts to carry our understanding and knowledge a few steps further. It is characteristic for IIEP studies to contain results of *ad hoc* enquiries made to supplement knowledge available at the time of research. It is also common experience of those working in the fields mentioned – and in many other fields, for that matter – to discover that research has been conducted in adjacent fields that can be of great use to the solution of one's own problems. The objective of this and the next section is to discuss two groups of sources of information about our subject and its problems: information available (to be discussed in the present section) and additional information needed (to be surveyed in Section 6). One particular aspect of the information problem will have our special attention. Information to be collected from enquiries or sample surveys can be considerably more relevant if based on a clear formulation of the action, or policy, for which it is needed. As an illustration we will discuss two aspects of information collection: one, the complete set of questions to be asked, and two, the way the answers have to be presented so as to enable the policy makers to take action (that is, to implement the policy they had in mind before the enquiry was conducted). These aspects of information collection will be dealt with in particular in Sections 5.3 and 5.6. These sections will be preceded by a general orientation on general world planning information (Section 5.2), world planning for some large economic sectors (Section 5.3), and general information about education planning (Section 5.4). As a consequence of the structure chosen for this report we cannot, unfortunately, avoid some duplication with the preceding sections. What we think are essentially new aspects can be found mainly after Section 5.4.

5.2 *World planning information**

In this section the best known attempts to estimate world development figures will be briefly mentioned. The first figures with some coherence on world economic development have been published by H. Kahn and A. J. Wiener, *The Year 2000* (New York, 1967) and are, in comparison to most later sets of figures, optimistic on what have later been labelled the 'new scarcities'. A defence against their critics seems to be in preparation (the title having been announced as *Prospects for Mankind*) and part of their optimism on man's inventiveness has been maintained.

The next set of figures, based on true modelling, has been published by J. W. Forrester in his *World Dynamics* (Cambridge, Mass., 1971). It was the pioneering work in which the 'new scarcities' were part of the model: scarcity of clean air and water because of pollution, of exhaustible resources and of the 'quality of life'. Most of the figures in the various alternatives were extended to AD 2100. Forrester's model is often referred to as 'World II'.

Based on the same method, but on an improved data base, the Meadows couple *et al.* published their well-known (first) *Report to the Club of Rome* (see Ref. 10). Their model is known as 'World III'. Both World II and World III were macro-worlds in the sense that no geographical subdivision had been introduced. This feature has been introduced in the Second Report to the Club of Rome, by M. Mesarović and E. Pestel, *Mankind at the Turning Point* (New York, 1974).

Not quite comparable from the model-technical point of view, but important because of its Third World origin, is the so-called Bariloche model by A. O. Herrera *et al.*, *Catastrophe or New Society? A Latin-American World Model* (see Ref. 7).

In many respects considerably more refined is the United Nations study by

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* The sources discussed in this section will not be mentioned in the list of references at the end of this paper.

W. Leontief, A. P. Carter and P. Petri, *The Future of the World Economy* (see Ref. 3), discussed at some length in Section 2. For practical planning purposes it is, at the time of writing (September 1978), the best base, although it may be too optimistic with regard to the performance to be expected from the Third World as a whole.

An internal document of the United Nations Centre for Development Planning, Projections and Policies, which has never been published, served as the background model for the United Nations Development Planning Committee and may conceivably be consulted at a member government's request.

Because of its novel features (and in several respects especially shocking conclusions) the Meadows report has been the object of severe criticism and of critical evaluation by the economic profession as well as by experts in regulation techniques. One example is H. S. D. Cole and R. C. Curnow, 'An evaluation of the World Models', published in *Futures*, Vol. 5 (1973), p. 108 ff. and a particularly thorough analysis is the one presented by W. Thissen in *Investigations into the Club of Rome's World 3 Model; Lessons for Understanding Complicated Models* (see Ref. 9). This dissertation is an excellent example of the contributions made by regulation engineers, in this case the group around O. Rademaker of the Eindhoven School of Technology, the Netherlands.

We may conclude this section by the enumeration of some journals in which world models are regularly evaluated; next to *Futures*, already mentioned, we may quote the *Journal of Development Planning* (published by the United Nations), *Alternatives, A Journal of World Policy* (published by the Institute for World Order, Inc.) and the *Journal of Policy Modeling, A Social Science Forum of World Issues* (published by North Holland, New York). Important work is published in various series of publications by the International Institute of Applied Systems Analysis, at Laxenburg, Austria, where first-rate scientists from East and West are collaborating.

5.3 *Information on planning for sectors*

As stated, some of the world models also contain information on a few large sectors (agriculture, manufacturing and services) or even on some thirty-five minor sectors (the Leontief model). In addition, some important planning models and figures are available for sectors only, especially for agriculture. An excellent model is MOIRA (Model of International Relations in Agriculture), by H. Linnemann and collaborators of the Free University of Amsterdam. The United Nations FAO is also working on a new model for agriculture.

For obvious reasons a large volume of sectoral planning and research today is devoted to energy, and nowhere are the uncertainties and the numbers of alternative scenarios as large as for this sector. One of the most thorough studies is being carried out by the United States National Research Council, linked with the National Academy of Sciences, Washington, D.C., and in particular by the Modeling Research Group, under the chairmanship of Tj. C. Koopmans.

5.4 *Education planning*

Within the service sector the most extensive and thorough planning models have been devoted to education and the central place taken by the IIEP need hardly be stressed. A recent survey (*Publications and Documents*, 1978) shows 546 publications and documents distributed over sixteen headings as follows:

General themes, including sociological and political factors (44); economics of education, costs and financing (107); labour and employment (32); demographic studies (9); planning at the local level, building of schools (23); administration, management, statistics, methods, techniques and models (69); elaboration and evaluation of curricula, including the qualitative aspects of education (71); educational technologies (33); external assistance (15); primary education (general studies) (2); secondary education (general studies) (4); higher education (50); teachers (13); professional and technical education (13); informal and extramural, adult and rural education (45); general national studies (16). Not included in this list are the IIEP Occasional Papers, numbering more than fifty.

Important contributions to educational research for developing countries is being done by national institutions in both developing and developed countries. By way of example, the Federal Republic of Germany may be mentioned, where until the end of 1974 more than 100 projects had been carried out.

5.5 *Type of data available and limits to their reliability*

Thanks to the increasing understanding of the relevance of education in the widest sense, the amount of information collected is steeply increasing. This is true for all groups of countries; the popularity of the concept of 'human capital' illustrates the change in attitude *vis-à-vis* education in comparison to fifty years ago, when education was almost exclusively considered as a cultural affair, and in many countries the attitude of education authorities *vis-à-vis* statisticians was hostile, just as was the attitude of medical experts. With the quick development of scientific research generally and quantitative research in the social sciences, the volume of statistical information has expanded rapidly. In scientifically advanced countries, such as the United States, the United Kingdom and France, some of the basic data, for instance the educational level of the labour force has only penetrated into the census questionnaires a few decades ago. More complete statistical descriptions of the education process began to be available in the 1950s and 1960s only (cf. Thonstad, see Ref. 18). Statistical information can be subdivided into two main categories. One is information about facts, and facts are necessarily phenomena of the past, even if it may be, in the best cases, a very recent past. Since planning deals with the future, we are used to working with a second category of quantitative information, the outcome of enquiries about people's expectations and plans, in short about opinions expressed. Statisticians have become aware, in the course of time, that such opinions need not and should not be taken for granted and often do not coincide with what people are actually going to do, once the future has come. In economic statistics this is a well-known discrepancy, for instance between how people say they would spend an income higher than today's and how they are spending it once that higher income materializes. This is no argument against conducting enquiries about opinions; public opinion polls are a most useful instrument. But, if possible, they should contain built-in cross-checks, and if these are not possible we should remain aware of the margins of error.

5.6 *Methods to collect and use opinion data*

Another aspect of the collection of opinion data with the aid of questionnaires is what I, for the sake of brevity, will call the methodology applied:

(i) to ask the right questions; and
(ii) to make the fullest possible use of the information obtained.

Generally speaking a rather frequent procedure is to ask 'interesting questions' which do satisfy part of our curiosity, but, on a closer look are not the safest base for the implementation of measures, that is of a policy.

Since the maximum of concreteness is desirable to illustrate these points I choose as an example Table 6 on page 223 of the IIEP study on Tanzania (see Ref. 15), already quoted before as a rich source of information. It deals with the discouraging aspects of working in rural areas and its main content is reproduced in Table IV.4 below.

There can be no doubt that Table IV.4 provides the reader with interesting information. The publication lists this information. But this is not the only use that can be made of the full material collected. In order to judge this we must

Table IV.4 Percentage of students who judged each of six inconveniences of work in rural areas as indicated in heading (per cent)

	Inconvenience seen as		
	Very important	Important	Not important
1 Lack of tap water, electricity	19	33	48
2 Communication difficulties	59	33	8
3 Separation from friends, relatives	5	15	80
4 Dullness of rural life	2	13	85
5 Lack of scope for improving competence	33	32	35
6 Delay in promotion	17	29	54

first state more explicitly what policy can be based on this type of information. Let us take as an example that incentives have to be found so as to induce a given percentage of the student population sampled to accept work in a rural area. We will discuss a complete treatment of this problem in Section 6.1. In the present section we only want to show that the information collected to derive Table 61 is much larger than what the table tells us. Suppose we restrict ourselves to income as the only inducement to overcome the inconveniences. In Section 4.5 we also mentioned other inducements, but they can be transformed into income additions. Let us suppose further that no additional income is needed for inconveniences described as 'not important', an additional income *a* to compensate for inconveniences considered 'important' and an extra income *a* + *b* to overcome 'very important' inconveniences. Finally, let the percentage of student population needed in rural areas be 35 per cent. The last column of the table seems to suggest that it will not be difficult to find 35 per cent who do not require compensation for inconveniences 1, 3, 4, 5 and 6. But this is not warranted. Those listed under 'not important' with regard to inconvenience 1 (lack of tap water, electricity), although constituting 48 per cent of the group, may be (partly) other than those who attach no importance to inconvenience 5. The only thing we know for sure is that at least 27 per cent (= 35 − 8) of the latter do attach importance to inconvenience 2. On top of the first difficulty we have the second that we cannot read from the table who among the 35 per cent who need no compensation for inconvenience 5 require *a* and who require *a* + *b* as the income compensation for other inconveniences. But all the answers are available in the material of the questionnaire. Using the punch cards of the individual respondents we can calculate for each of them how much income compensation they require and select the 35 per cent 'cheapest' candidates.

We hope that our illustration has clarified the point we want to make. Stated in other words it is that we should start by defining a policy (in the example: compensating by additional income for inconveniences) and then ask the necessary questions (we assume these to be exactly those asked; but there might be other inconveniences than 1 through 6), finishing up with another use of the cards than deriving Table 62 from it, namely looking for the 35 per cent 'cheapest' candidates.

It should be added that our example contains a simplification which makes it debatable, namely the assumption that *a* and *b* are identical for all students. In Section 6.1 we will develop a method which takes into account possible differences in *a* and *b* among different individuals.

A different remark on the method used by the authors concerns the use of the material summarized in Table 63. The calculation of rank figures concerning the factors reported to contribute to students' satisfaction magnifies the differences in scores of the factors to an extent which raises doubt about the verbal summary given on p. 234, where it is said that ' "Good income" ranks very low in order of importance'. In Table 63 we find, however, that 36 per cent judge a good income as very important and 46 per cent as important! It is our hope that our treatment in Section 6.1 constitutes a more equilibrated method to deal with this type of problem. Yet, the material collected is very valuable for our method as well.

5.7 *Factors determining satisfaction*

The standard treatment in economic science of labour supply consists of deriving the latter from a hypothetical maximization of the utility or satisfaction of the individual concerned by choosing his or her occupation (and implicitly the education required), given the income and the occupation's characteristics, whether positive or negative attractiveness or inconvenience). An increasing volume of literature has become available on the basis of a quantitative treatment, the minimum being the estimate of trade-offs between income differences and differences in attractiveness or inconvenience, and the maximum being an outright measurement of utility, satisfaction or welfare (cf. Van Praag,[24] Levy and Guttman[25]). Clearly other variables and parameters affect a person's or a family's welfare, such as family size and composition, relations within the family, with other relatives and friends, with the social and occupational group in which the individual or family lives. Some of these other variables and parameters have already been identified and included in the literature. Research of this type is relevant for defining an optimal policy in general and an optimal educational policy in particular. Studies by the IIEP, and in particular those dealing with the attainment of an harmonious national and international order, have added data of interest to these estimations of personal welfare, and, accepting certain assumptions, of social welfare.

Alongside the progress made in the field of measuring trade-offs or utility, a considerable number of open questions remain to be answered. Some of these will be discussed in Section 6.1

5.8 *Earnings equations*

An instrument of considerable practical importance to the study of the labour market and the education process is known as 'earnings equations'. Such equations express the level of earnings (or labour income) obtained from different occupations in terms of at least a number of characteristics of the occupations under consideration; preferably of all occupations in a given economy. In our opinion (cf. Berkouwer *et al.*, see Ref. 17) not only characteristics of the occupations (which may be called the demand side of the labour market), but also of the individuals holding the jobs (to be called the supply side) should be included. However that may be, earnings equations are useful:

(i) for the choice of a future occupation and the education process leading to it;

(ii) for a government's policies directed at optimal income and education policy; and

(iii) for social scientists to advise governments on such policies for the future.

One example to illustrate the sort of issues involved is the possibility to decompose income differences between occupations into (a) compensatory and (b) scarcity income differences. The former are a compensation for differences in efforts made and open to the choice of the individual. They may be said to characterize and measure equitable income differences; the latter reflect income differences due to (natural or organized) scarcity of the capabilities needed for the various occupations and they need not be considered equitable.[26] It should be added that opinions on the meaning of equity show rather wide variations among social scientists.

6 Additional Research Needed

6.1 *Additional use to be made of existing material*

In Section 5.6 we discussed the collection and use of opinion data. As an illustration we described a further use IIEP could have made – under certain assumptions – of the material collected on the inconveniences of jobs in rural areas for third-level educated manpower. In the present section we propose to elaborate on this theme by setting out an approach suggested in more detail. We emphasize starting from a policy envisaged, then deriving from it the questions posed to the sample population in order to give a solid foundation to the proposed policy. In this elaboration we shall use the method of earnings equations set out in Section 5.8, in its simplest form, to be written as

$$y = \sum_{1}^{6} {}^{i}a_i x_i \tag{1}$$

Here y represents earnings and x_i stands for the intensity in which aspects or capability i is required for each occupation covered by Equation 1; a new element added is the set a_i of coefficients or, in the language of job evaluation, weights given to the aspects i. In order to remain as closely as possible to Table 61 of Sanyal and Kinunda (see Ref. 15) we assume that the six aspects (called inconveniences in Section 5.6) are the only relevant aspects of the jobs covered by Equation 1. In a subsequent discussion of Table 63 we will change this assumption; this does not affect the essence of the method to be discussed. In the present exposition we need not necessarily think of only one rural occupation nor of rural occupations only. The (about) 500 individuals whose data are supposed to be available as the basis of Table 61 may have been taken from a number of different occupations whose characteristics are sufficiently covered by no more than six aspects. In the present context the individuals are employed and paid the income y (data which are supposed to be added to our material).

From function analysis the figures x_i are obtained and with the aid of multiple correlation analysis we are now able to derive the weights a_i in Equation 1.

Table 61 is a very crude representative of the sort of material used, since it distinguishes only three values of the intensities x_i, indicated as very important, important and not important. To each of these denominations we can attach the numbers we prefer; in the practical application of job evaluation these numbers are a matter of convention, provided only that, once the scale has been chosen, it is applied to all occupations considered by a careful study of the job requirements.

In the case of Table 61 we have a number of observations for each of the x equal to (about) 500, in total therefore 3,000. Table 61 only gives eighteen figures. In order to estimate Equation 1, that is, the a_i ($i = 1 \ldots 6$), we need all these observations and in addition 500 values of y.

The question will be raised what is the use of having the a_i; and hence Equation 1. The answer is two-fold. First of all, we can determine the income y to be paid for an additional job of which we have estimated the x_i. This is a customary procedure in job evaluation and assures some sort of 'fairness', within the framework of the existing situation. (This is not, in our opinion, equivalent to equity, as we discussed in Section 5.8.)

The second use we can make of equations of the type of Equation 1 goes well beyond this practice of job evaluation. This is the subject dealt with in Berkouwer, Hartog and Tinbergen (see Ref. 17). Here the x_i are the levels of various types of education completed, for instance basic and specialized education. Moreover, the a_i are no longer considered to be constants, but to reflect the relative scarcity of each of the aspects. For that purpose they are assumed to depend on the actual education x_i' the individual who holds the job has completed. Then a_i is assumed to depend negatively on x_i' and the materials used in the publication just mentioned confirm this assumption in a significant way. The application of this generalized version of Equation 1 is much more important. It teaches us how many more alumni in a certain sector of education are needed in order to reduce fair incomes by a given amount. Thus, an income policy can be planned which reduces income inequalities.

This procedure can also be clarified in another way. If we need only a relatively small number of alumni of a given course or institution we can attract those for whom the effort required to finish that education is relatively small and who will therefore be satisfied with a modest additional income. The same applies if we return to the original meaning of the aspects in Table 61: the inconveniences of living in a village. If only a few of such posts have to be filled, we can attract those for whom the inconveniences are not important and who therefore do not need a high compensation for them.

The procedures so far discussed in this section may also be illustrated by the material summarized in Table 63, p. 226, since in it some more aspects have been considered. The reader will have understood, however, that our preference with regard to incomes is to handle them in a way different from Table 63. Here questions about income increases desired to accept specified inconveniences would have been more helpful. Even so Table 63 contains a summary of information which, when fully analysed, may be helpful to complete the sort of research suggested in the present section.

6.2 *Additional material needed to implement the policies proposed*

Whereas existing data of many other types can also be used for additional approaches to our problems, in the way exemplified in Section 6.1, there are, as a matter of course, many other subjects mentioned in Sections 2 to 4 for which appropriate information is not yet available. This creates a need for additional statistical and other material to formulate the guidelines which are the subject of this report. In the present section some examples of this material will be mentioned briefly.

Remembering the steps proposed in Sections 2 to 4, we shall be aware of the need, already mentioned in a general way, of setting up alternative plans. Such alternatives may start with alternatives to the Leontief world planning figures, based on either some of the alternatives indicated by Leontief *et al.* themselves or on alternatives not mentioned in their report (see Ref. 3). Thus, the production and exports of a number of industrial products may be planned on a policy basis different from the one assumed by the Leontief study. Depending on how we want to speed up Third World self-reliance in, for instance, the capital goods sectors, it is conceivable that such production is expanded more rapidly than in the Leontief scenarios. A similar procedure may be followed with regard to chemical fertilizer.

A second area in which alternatives are possible and even abundant is how the regional figures shown by Leontief *et al.* or any alternative are distributed over the individual countries of each region, in particular the region to which the country under consideration belongs. Also the organization of this type of work can be an object of alternative approaches. The countries in the region might negotiate the distribution among themselves, or be assisted by a regional planning institute or development bank. Outsiders may be drawn in, such as, for instance, the transnational corporations the countries want to attract or to retain as partners.

A third example of the data needed in order to implement the planning activities sketched in Sections 2 to 4 concerns the number of international civil servants the country considered wants to make available to staff the international organizations which are able to help materialize the NIEO. This subject might very well be one to decide jointly with one of the present or future agencies the Third World has created or will create in an effort to implement the NIEO.

A fourth example, constituting a large range of possible consultations, is to take advantage of the example of the more advanced among the developing world and to find out, by consultations, what solutions have been elaborated elsewhere. In fact, we already stressed some of the educational processes needed to train the higher-level manpower desired in common institutions of culturally and geographically related regions. But apart from such common undertakings the need may be felt simply to profit from information about how other countries in similar positions have dealt with all the problems discussed.

A fifth, and last, example is that several of the enquiries made by, for instance, Sanyal and Kinunda in their study on Tanzania (see Ref. 15) may be undertaken by the country considered, either in the same way or in the amended way discussed in Sections 5.5 and 6.1 of the present report. In fact, there are already other studies undertaken under the auspices of the IIEP in which similar and not necessarily identical enquiries have been made. It goes without saying that the structure and the political preferences of the country considered impose the need for somewhat different enquiries.

6.3 *Research on factors making for personal and social welfare*

As indicated in Section 5.7 the usual approach in economics to explain personal attitudes is to assume that each individual strives for maximum welfare. Moreover, in principle the task of each government is to maximize social welfare, meant to constitute a measure for the 'general interest' of the people it represents or is supposed to represent. As also indicated in Section 5.7, there is a clear trend to deal more systematically, more scientifically and more quantitatively with these various problems than in the past. The numbers of institutions and journals dealing with this type of research is increasing. Some examples chosen at random are the United Nations Research Institute for Social Development (UNRISD) in Geneva and the Arbeitsgemeinschaft für Lebensniveauvergleiche (Institute for Comparative Studies of Welfare Levels) in Vienna, or the journal Social Indicators Research, Guelph, Ontario, Canada. In principle, two methods are available to arrive at the relevant information: observation of behaviour or collection of opinions – already mentioned in Section 5.5. The former method has been applied by the present author (see Ref. 20) – followed by a series of articles; the latter by Van Praag (see Ref. 24) and Levy and Guttman (see Ref. 25) mentioned in Section 5.7. Whereas for quite some time welfare, then often called utility, was assumed by economists to depend mainly on the quantities of goods consumed and the quantity of labour performed, the number of factors recognized to be relevant has increased rapidly, under the impact of criticism formulated by sociologists, labour psychologists and representatives of other disciplines. Thus, the type of labour performed, the training effort made, the relationships to other individuals or groups ('reference groups'), health, family life, all of them expressed in intensities of each aspect, have become the subject of enquiries. Among the relationships to others, those to the closest colleagues on the job and those living in the neighbourhood are of particular relevance. The areas of research involved are expanding rapidly and are being integrated into multidisciplinary research. Attempts at integration are now underway which bring together the disciplines mentioned and education experts, including geneticists. This integration is sought because of the important problem: What are the limits of expansion of education? These limits are partly dependent on the role played by inheritance or 'innateness' of some personality traits, as set out in Section 4.4.

6.4 *Learning from errors*

The questions of what additional research is needed and what priorities to determine rank high in a world with so many unsolved problems, problems made clear to us by ecologists and, since 1968, by the Club of Rome's initiatives. One systematic way to formulate an agenda of research urgently needed is to try to learn from failures, our own and those of others. The claims implied in the implementation of the NIEO reflect a number of failures in the past few decades. The expectations held around the year 1960 have not been fulfilled and the deviations between those expectations or hopes and today's world situation constitute a helpful source of listing important errors made. Why is it that the poorest half of the developing countries' population has not shared in the overall progress made? Why is it that especially the countries with the lowest average incomes have made so little overall progress? Why is it that the developed countries have not followed the Pearson Commission's recommendations? These questions have been with us for the last ten years and many answers are given, but the answers given by one expert or political group are different from the answers given by other experts or political groups. Research is needed wherever there are such divergent answers.

We can only illustrate our point; there is no possibility of drawing up a complete list of major errors. A well-known question focuses on the expectations raised by the 'green revolution'. It has become clear by now that yields of wheat, rice and corn did go up, but that only the rich peasants reaped the benefits. An answer to this challenge given by a highly respected expert in the general field of development policies is Irma Adelman's answer (see Ref. 21) before trying to raise an asset's productivity see to it that its distribution is made much less unequal than it usually is. Before taking measures to raise the productivity of land, do redistribute land. Before expanding, as a useful asset, human capital, see to it that equal access to education be established. An important reason for unequal access to higher education in developed countries has been found to be the family environment in which a three-year old child grows up. This has induced governments, for instance the American government, to organize programmes for 'the disadvantaged'. Several of these programmes have not been considered a success. One explanation given by a first-rate expert, T. Husén,[27] is that the additional training given to the disadvantaged children should be given simultaneously to the child's mother. These experiences in developed countries may be of some use also to developing countries, even though they will have to be adapted to the circumstances.

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V The Contribution of Higher Education to the Establishment of a New Cultural Order – Implications for European Universities

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Abstract The evolution of a New International Economic Order will concomitantly create a new cultural order in the world. Thus, those aspects of production, consumption, and distribution of goods and services which have traditionally reflected the economic order will undergo changes. These changes, within the NIEO will foreshadow changes in the production, consumption, and distribution of 'cultural goods'. Some current factors will be conducive, other deterrent, to the establishment of such a new cultural order. Those factors now deterrent must become conducive. The role of science and technology, the style of life, and the very sense and value of life will be subjected to transformations. As for higher education, and especially universities, vocational training should not remain their only task. Instead of making access to higher education contingent upon the national economy and its demand for specialists, universities must become 'centres of general culture'. Not only should those with higher education aim to expand access to a quality standard of living, but they should also be taking leadership roles in creating training programmes for mass cultural participation. Beyond the utilitarian values of science, science must have value in itself; it should lead to self-respect and fulfilment; it should amend and preserve civilization. Science and scientists must be in touch with the moral implications as well as technological problems. The trend of viewing civilization as one of 'means' rather than of 'aims' must be reversed; our focus must be transferred from objects to beings. The mission of a humanistic culture 'consists in teaching people how to organize the world they create and live in, so as to make it more humane'.

1 The New Economic Order and the New Cultural Order

The establishment of a New International Economic Order (NIEO) in the world is not merely a matter of international commercial agreements and organizational efficiency. Planning and implementation of a new economic order in the world are deeply rooted in the integrational and disintegrational processes of various cultures specific to particular continents and in the social changes occurring in different countries, which bear resemblances to, as well as vary from, one another. The planning and implementation of a new order is also implanted in the transformation process of a general world view which create both stable and variable criteria for evaluating human behaviour and concepts of the value of life. 'Economy is in fact the expression of man's philosophy, and a basic factor in promulgating and consolidating accepted assumptions', as Karl Marx stated in his polemic with Adam Smith.

These interrelations give rise to the complicated problems of a new cultural order which at the same time conditions a new economic order to a large extent. There are three aspects of that matter calling for particular consideration (i.e. production, consumption, and distribution of goods).

Production is largely dependent on the adequate training of specialists and skilled labourers. That is one (though certainly not the only one of its most important determinants. The proper training of future managers and employees, however, is not merely a question of conveying a certain amount of knowledge and developing necessary skills. It consists also of cultivating the ability to participate in the advancement of science and technology as well as the ability to organize one's life in such a way as to meet the requirements of modern industrial civilization. It is easier to obtain good results in the first field than in the latter. The effects of vocational training in developing countries are often insufficient; even though the necessary facts have been taught and the adequate manual skills developed this 'vocational education' has not been accepted in the social environment nor has it affected the personal life style determined by existing tradition and patterns of behaviour. Accepting a new life style means choosing an existence different from the one accepted so far, a life style whose values are still morally binding. It means a betrayal of tradition; proclaiming oneself in favour of a new model of life which might – instead of perpetuating development – bring constraint and disorganization. Although it has been generally recognized that human beings should not be treated merely as 'manpower', still people are often conceived of solely as 'producers'. Even assuming that the alienation of labour could be totally eliminated – and that is a far-fetched assumption – would productive activity constitute the full expression of humanity?

African and Asian countries, where the reservations against the above concept have always been most pronounced, used to be looked upon with certain superiority by the representatives of Euro-American industrial civilization.

An accepted model in that civilization was a 'man-of-action', working methodically and energetically, orderly in everyday behaviour, aware that time is money, and money is power. But is it right to conceive of human life only as an intense effort to manufacture goods and to continuously climb the ladder of success? Is it just to disseminate such concepts of life the world over, or should the new economic order be based on other assumptions, on different principles of the philosophy of life and of the concept of humanity?

As regards consumption, its character should be decided by the programmes of the NIEO. The problem is extremely complicated. Development of European capitalism was closely connected with a puritan mentality that restrained the search for enjoyment and pleasure in life. Individual economic success existed to enable further increase of investment, yet the way of life was supposed to remain modest and economical, even ascetic. Although present in the early nineteenth century, these restrictions lost their importance in later periods. In the mid-twentieth century an opposite manner of life became generally accepted: puritan ascetism gave way to enjoyment of the pleasures of worldly life and using one's material resources for that purpose. The way of life promoted by the rich became a very attractive model in the welfare society. Consumption of material goods became an important measure of social prestige, distinguishing individuals and allowing them to assume an enviable and desirable position in society. The level of consumption became a basic criterion of success. Professional rank and accomplishments or creative achievements became less important than a high material standard of living. Under these circumstances the border line between rational consumption, dedicated to life and its advancement; and irrational consumption, an unnecessary individual and social waste; became obliterated. The replacement of the traditional concept of 'man-as-producer' by the new consumption-orientated model – instead of freeing people from the slavery of material objects, made this subjection even more pronounced, changing its character. Youth protest movements exposed the inhuman character of the consumers' society in which a market for goods and services was developed solely for pleasure and shallow entertainment.

Such a concept of consumption cannot form a basis for a new economic order in the world. That new order can only be founded upon consumption rationally understood as a means to satisfy justified human needs. Jan Tinbergen defines it in the following way: 'the paramount goal of the world's society is to ensure to all people the life of self-respect and welfare'. This definition, which implies a great programme for social renewal, stands in opposition to the widespread concept of consumption as unlimited and egoistic satisfaction of pleasure.

The persistence of this understanding of consumption is one of the reasons for the increasing world disorder, and for the growing conflicts between those who have too much and those who do not have enough; between people living in countries of surfeit and waste, and those experiencing poverty and famine. However, it is an extremely difficult task to eradicate from social consciousness such a concept of consumption; it is a powerful driving force for privileged individuals and groups. Eradicating this concept requires a true acceptance of a programme for universal justice and solidarity. Such acceptance may be based either on the moral principles of altruism and community spirit or on the pragmatic realization that all other ways lead to destruction. It has been said that 'Although the idea of brotherhood is not new, its singular importance nowadays lies in that it is a vital condition of the preservation of mankind'. From this point of view, however more sceptically, Dumont has defined a modern alternative faced by our world as an alternative of 'Utopia or death'. John F. Kennedy expressed it yet in other words, saying that 'If the free society is not able to save the many poor it also cannot save the few rich'.

The problems of consumption concern not only material products but are ultimately also moral and cultural problems, since it is necessary to distinguish between rational and irrational consumption, justified and wasteful, selfish and subject to the universal interests of humanity.

Thus we have come to the third sphere of the inter-related economic and cultural elements of the new order: the distribution of goods. We can no longer accept the principle of classical liberalism wherein neither the state nor any social institutions may intervene in the process of distribution, which revolves around the success of the strong and failure of the weak. We shall advocate control over these processes which aim at ensuring everyone just access to everything. The range and methods of this intervention may be interpreted in a variety of ways. However, there is no need to discuss those differences here. For our purpose it is important to stress the one essential principle common to social programmes: they exceed the limitations of economic calculation because they express universal moral beliefs concerning (actual/real) human relations.

In *A Report to the Club of Rome – Reshaping the International Order*, published in 1976, Jan Tinbergen defined the programme of a just socio-economic order, pointing out that it should aim at the realization of and compliance with six essential postulates (i.e. equality as an expression of the equal value of all human beings, which calls for the abolition of all discrimination; freedom guaranteed to all individuals and social groups within limits which would not infringe on the freedom of others; democracy and partnership as a way of ruling society; solidarity, which calls for the establishment of a uniform front in the struggle for realization of a just social programme; preservation of local and regional cultural differences; and inviolability and preservation of environment). The above programme shows how closely the economic order of the world is connected with a new cultural order.

This new order is not easy to define. Its principles may be differently interpreted and those differences may lead to a variety of strategic directives. Is the programme of the world's renewal to be realized by way of evolution, or by revolutionary methods? Is the future shape of society to be determined by the state or expressed through local social initiative? Will the leading ideology be that of social democrats or that of communists? Should it assume a secular and humanistic character or turn to religion as is implied in the catholic programme for evangelization of the world or in the even more politically orientated ideology of Islam? Do African countries – or at least some of them – contribute any new elements to that strategy? Will the new Chinese programme – having abolished the principles of the so-called cultural revolution – bring forth any concepts of social activity unknown thus far? To what extent will the experience of Latin-American peoples become significant? What will be the vision of the new social order contributed by India – a country whose culture has been so important to our world?

All those questions indicate the wide range of possibilities offered by modern ideologies. The inherent contradictions prove that the new economic order cannot be planned, let alone implemented, successfully without international agreement – on the world scale – with regard to the field of culture and the concept of life. What could be the character of such an agreement and what factors would promote or deter its realization?

2 Conducive and Deterrent Factors in the Establishment of a New Cultural Order

For centuries the development of mankind has been taking place within mutually isolated cultures. Although a certain diffusion of ideas – often accompanied by violent controversies – did occur, bearing significance for particular geographical regions, these phenomena were neither deep nor long-lasting. They usually concerned only the spheres of intellectual activity (e.g. Arabic science and philosophy of the Middle Ages, and art, especially painting and music, of recent times). Even though historians of art may highly value the influence of African, Asian and Polynesian art upon the development of modern European art, this influence has been limited to artistic circles.

As regards social life, the situation was different. European culture has had a powerfully expansive character. This expansion took two directions: dissemination of Christianity through the missionary activity, and promulgation of modern industrial civilization through science and technology. The effects have been controversial. Jomo Kenyatta commented once, rather bitterly, on European interference: 'When the white man appeared in Africa, he had the Bible and we ruled our land. And now? We have the Bible, and he took over our land.' It is a sharp criticism of the role of missionaries: Christianity gained followers but it did not give the African people the opportunity to live and develop their own countries; they became areas of colonial exploitation.

In the case of science and technology other difficulties emerged. Although the adoption of Euro-American science and technology in Africa and Asia sometimes allowed powerful economic systems to develop (as in Japan), it has by no means been a frequent phenomenon. On the other hand, the expansion of science and technology was followed by the importation of a new style of life. Although typical for the developed societies of Europe and North America, the life styles stood in sharp contrast to local traditions and customs. Japan has managed to a certain extent to preserve its own distinct culture in spite of the adoption of Euro-American science and technology; India also follows the same route.

In Africa the situation is far less simple. The influence of Western science and technology threatens the continuity of the cultures of nations and tribes; it provokes sharp internal conflicts in those communities between a majority of the population and those small groups of the privileged élite alienated by the process of europization and americanization. The reaction against such a situation has been two-fold. On the one hand, there are defenders of the traditional native culture, trying to find in it universal values. Others criticize this traditional and emotional programme with its missionary implications and oppose the Western influences from a Marxist point of view (i.e. trying to separate the stable and valuable elements of those influences – modern science and technology – from those expressing a system of class division, i.e., upper class model of life).

All those experiences indicate that establishing a new cultural order in the world is a most complicated task. While analysing this question it is necessary to distinguish a few different spheres of activity.

The first problem worthy of consideration is the role of science and technology in the modern world. Nothing can deter their progress, and the number of people who contribute to this development in various countries constantly increases. Science and technology are a common language of modern civilization, an essential element of its integration which is focused on the same problems of cognizance and social activity. The advancement of science and technology, though of varied intensity in different countries, has become a generally accepted value.

On the other hand, the development of science and technology does not occur in isolation from actual social and political conditions. These affect the direction and use of science and technology in a variety of ways. It has already been realized that the effects of the development of science and technology on our civilization are not totally beneficial. We are aware that – first of all – we must prevent science and technology from being used against the vital interests of humanity, and secondly, we must control its progress in such a way as to reduce and eliminate its unfavourable consequences.

Both aspects of this programme are extremely difficult to realize due to varied, frequently antagonistic ideas of social goals and values, usually responsive to the different interests of great international syndicates and competing states. Therefore, even though science and technology may be a universal language of the world, what is being said in that language is quite another matter.

Establishing a new cultural order in the world should therefore include agreements concerning social control over the advancement of science and technology. Prospective tasks in that field have been formulated by the Centre for the Study of Developing Societies (Delhi, India):

> The Western concept of science as a tool to conquer nature and the social order has led to a host of evils.
>
> Technology, put to the service of industrial expansion, has become the purveyor of neo-colonialism.
>
> Third World societies penetrated by technologically sophisticated transnational industries suffer exploitation of their peoples, erosion of their cultures and a ravaging of their resources. Profits from such enterprises are

shared by the encroaching power and an emerging class of powerful, privileged and oppressive local élites.

Western technological societies, victims of both stress and environmental pollution, exhibit social, psychological and physical pathologies through the alarming rise in criminality, mental illness, heart disease and cancer.

Military technologies, with their escalating absorption of capital, built-in obsolescence, and lack of social utility produce unemployment, deplete resources, increase political repression and threaten human survival.

It is necessary to search for alternative perspectives on science and technology which will redirect their use to the betterment of the human condition and preservation of our natural heritage.

Another sphere of activity toward the new cultural order concerns the style of life, which differs to a high degree in various parts of the world. Cultural heritage and the living standard affect in various ways the style of life adopted by the masses. Euro-American civilization promotes a luxurious and consumption-oriented way of life which is immensely attractive both for the lower (i.e. poorer) classes in the developed countries and for the élite in the developing countries. In both cases this style of life results in social dissociation, in conflicts between different social strata, in a struggle between defenders of the cultural tradition and those privileged groups who have repudiated that tradition.

At the same time, the Euro-American civilization promotes an active kind of life, mobilizing a constant effort to climb the ladder of success; the latter consisting of gaining more money, more importance, more publicity, more power, etc. Such a model of life is not highly appreciated in certain other countries. An American tourist in India, seeing an Indian resting in the shadow of his rickshaw, asked him why he was not working. 'Why should I work?', was the answer. 'I have no wife and I have already eaten my daily rice'. At a higher level of needs and aspirations such an attitude finds expression in meditation and contemplation, in living close to nature, to art, to one's friends. Galtung calls it a horizontal style in opposition to the vertical style which dominates in modern Euro-American civilization.

What are the chances of reconciling these two attitudes? Is there a possibility of restraining aspirations that lead to excessive consumption, and instead creating an atmosphere accepting modest ways of living, accessible to all the members of a particular community and in the more distant future to the whole world? In other words, is it possible to limit the preferences for the vertical attitude and develop appreciation toward the horizontal style? Those are the questions directed towards the Euro-American civilization. In the case of civilization we should ask whether they are able to prevent stagnation, laziness and passivity that may arise from the 'horizontal' attitude. Although finding a balance between these different styles of life is most difficult, all possible efforts should be made in this field, because as long as the sharp contradiction between them does persist, the establishment of a universal cultural order will be impossible.

The above-discussed problems have brought us to the third sphere of activity concerning a new cultural order in the world, that is to the question of the sense and value of life, the problem of humanity and his destiny. It could have appeared for a time that the civilization of science and technology, concerned mainly with practical and utilitarian aspects of life, pushed these 'ultimate' questions far into the background. Indeed, they seemed absent from the 'everyday rush'. However, they did not disappear from human consciousness and especially subconsciousness. We observe considerable increases in emotional and intellectual needs. They are manifested in the growing revitalization of religious attitudes within various religious sects as well as in a variety of mystical and therapeutic practices.

At the same time there is a strong social and political revitalization of Islam, which is assuming an overall leadership over its followers in the modern world. The development of the situation in Iran, which was to become a modern, industrial capitalist state and instead became an Islamic republic, is a significant example of the importance of the metaphysical aspects of human life.

The above-mentioned processes create especially difficult problems for the European consciousness, which for a few centuries has been formed in growing confidence in the secular philosophy and science. It has been considered a hallmark of modern mind to profess a secular view of the world, to recognize scientific facts as guiding principles, to accept humanistic ideas as the historic human output which should be binding throughout generations. We like to call the present times an era of revolution of science and technology, an epoch of universal education; if we then realize that along with scientific and secular elements we are faced with just the opposite forces which, moreover, frequently gain leadership over minds and attitudes – it becomes clear that the question of a new cultural order is far from easy.

Science has always been our Euro-American contribution to the progress of mankind. However, as science cannot answer all the questions concerning human destiny, it must withdraw from the front line and leave space for the great dispute between various metaphysical and religious systems of our world. There is no possibility that any one system will win that dispute. There is a possibility, however, that it could take the form of a continuous dialogue instead of struggle, and that it could occur in an atmosphere of tolerance instead of inducing growing fanaticism.

3 Vocational Training Should Not Remain the Only Task of Universities

The establishment of a new cultural order is a difficult and complicated task. It requires a manifold and diversified strategy as well as co-operation of various institutions and organizations.

Whether the European universities can contribute to the fulfilment of this task will depend on their essential character. The duality of function performed by universities is of particular importance in this respect. On the one hand, they prepare well-trained specialists for the national economy, on the other – they constitute high-level centres of general culture.

The problems of the present and future culture, in the broadest sense, are becoming more and more important and interesting for a growing number of people. They involve a wide range of subjects: from philosophy to art, from natural sciences to social and political issues, from technology to architecture. They are becoming increasingly important not only from a purely informative point of view, but also as an expression of need to understand the reality within which we live and which we define ourselves.

It may be expected that all those interests will still develop in the future. People will have more free time, it will require less effort to achieve a satisfactory living standard. The conditions of growing affluence will be favourable for developing cultural interests. This, however, would call for appropriate stimulation, for better organization of life. That is the sphere in which the future way of life in the welfare civilization will be decided; the question is whether it is going to be a life of superficial comfort, shallow entertainment and passive acceptance of the so-called mass culture – or that of creative endeavour and true interest in culture conceived as a kingdom of all values and a manifold result of human activity.

Obviously, the processes of cultural participation are of a natural and spontaneous character; they develop in the course of life itself, within specific conditions that provide access to cultural values. These values, however, do not emerge from the direct realities of life; they are partly an element of historical heritage, they partly originate from some remote countries, and they are partly formed in specialized intellectual and creative centres. For all these reasons, participation in culture becomes a complex and difficult process, requiring certain training. Cultural life has always constituted a specific superstructure over the natural human life. Currently, however, culture has become a phenomenon even more complex and remote from practical reality than it had been in earlier times, when it found expression in myths, rituals and public manifestations, much more accessible and clearly understood by every member of society.

Unless modern civilization is to lead us to the wilderness of the 'consumers' society', it must create conditions in which culture would become elements of the average person's reality, his everyday environment, an area of personal needs and their realization. What should be done – and what can be done – in order to enrich human life, to develop and satisfy society's non-material needs?

Modern people must undergo specialized training before they can perform this job which cannot be learned by mere imitation. In the same way they must be trained to participate in culture. That specific 'training' is brought about first of all through so-called parallel education, that is education in the socio-cultural environment, through literature, theatre, film, press, radio and television; through spontaneous artistic activity; through self-improvement.

Another important sphere of educational activity is continuing education. School education becomes only one element of the whole education process, but it is an element of extreme importance.

In that system of cultural education an increasingly important role is played by educational institutions of a higher level. To introduce people into modern culture means not only to supply them with basic tools for its reception. First and foremost it means introducing them into modern culture's essential problems, often of a complex and difficult nature. Elementary or even secondary level education is not sufficient for that purpose. What is needed is university education.

And that is exactly where the complications arise. From the point of view of cultural education, a characteristic inner antinomy can be observed in the schooling system in our countries. It is a contradiction between the principle of the universality of education and the principle of selection limiting this universality. According to our educational policy, everybody ought to be educated up to a certain age and a certain level, and at the same time much importance is being attached to limiting the possibilities above that age.

This very principle gives rise to serious doubts. The universal character of the lower levels of education is being justified by cultural considerations (i.e. that the whole society should achieve a certain level of general education). Selection at the higher level is explained by the requirements of the national economy. Thus the educational system is based on two principles which – instead of complementing – contradict each other.

From the point of view of culture it would be most desirable if everyone could, and wanted to, obtain the highest possible level of education. From the standpoint of the national economy it is important that not everyone be able to reach higher levels of the educational system. The national economy has limited demands for the highly qualified specialists and must to a large extent depend on the people with secondary and elementary qualifications. From this point of view it is also important that only a certain group of people should want to obtain higher education while others should have limited aspirations in this respect.

Higher education – including universities – has thus become a system of specialized vocational training with limited capacity. On the other hand, studies in the institutions of higher education remain the only possibility to attain a higher level of general culture. Even if the stress is on technical subjects, the theoretical part of the studies is conducive to the development of a general cultural level. Living in a big city or a university town with its cultural institutions, participation in various youth organizations and social activities constitute additional factors in the general intellectual development of a young person.

This dependence of cultural education on the requirements of the economy appears to be unjust. It would seem a much more favourable situation in which all the young people – regardless of the level of their professional training – could have equal access to cultural education of the highest possible standard.

It would perhaps be most desirable of all if people with lower professional qualifications, hence taking lower positions in the occupational hierarchy, were able to reach to the higher and highest levels of cultural participation. It can be expected that if creation of cultural values ('cultural demand') is possible, in the case of people lacking higher vocational education, then it should also be possible in the case of cultural 'consumption'.

Along with the development of democracy a growing demand for individual cultural advancement, independent of other personal plans for the future, will appear. People are often ready to accept certain inequalities of material standard, in social or professional position; they see no reason, however, for accepting inequalities in cultural participation. Culture is regarded as a sphere of equality of human beings and any barriers in that field are experienced as particularly unjust or even inhuman.

After abolishing such obstacles to cultural participation as social background, financial status or the place of residence, isn't it time to start eliminating those arising from a given level of education?

Is it possible to resolve the contradictions within the existing educational system, which result in the demand for highly qualified specialists being limited by the requirements of the labour market, so that cultural education can become unrestricted and generally accessible?

It seems that such possibilities do exist. In order to implement them it is necessary to overcome the limitations faced by people who happen to possess lesser occupational qualifications. The independence of cultural education can be achieved, first, through prolonging compulsory general education through university level, and secondly, through the essential reorganization of universities. Universities should change from higher vocational schools into centres of modern culture, generally accessible and exerting influence on the whole society.

If human life in the future – and that future starts now – is to be fully humane, universities will have to join in the methodical stimulation of processes leading to this purpose. Universities – as was their great tradition – should become centres of creative attitudes towards life and culture. They should become a forum for dispute on the fundamental humanistic values, on their proper understanding and continuation. Science should become a matter of criticism and creative endeavour. Conveying of cultural values should activate the mind and stimulate to reflection.

Universities would then gain in the whole society that significance which they once had in limited circles. The double meaning of the traditional name 'universitas' – completeness of knowledge and universal participation in its development – would find realization, fulfilling thus the dreams of great pedagogues who – like Komeński – wanted 'everyone to know all about everything'. It is a magnificent vision of a truly democratic equality of human beings, but then it has always been inherent in the ideals of socialism, which aimed at the situation in which a common worker would have the knowledge of art, science, technology and philosophy equal to that reserved thus far for artists and intellectuals.

4 Utilitarian and Autonomous Values of Science

The above considerations have brought us to the essential problem of our era (i.e. to the question of the quality of life and the role of science in this respect). Both natural and social sciences serve to enhance the organization of material and social aspects of reality. The role of science, however, must not be limited to cognition that would ensure optimal guidelines for action. The more the natural and social sciences tend towards praxiological and pragmatic goals the more pronounced will be the need for studies on humanity, culture, values of life. For the organization of social and material practices requires the acceptance of humanistic values.

People not only play particular social 'roles'; they also want to shape their lives for themselves, for other people, they want to experience value that they appreciate and consider important.

There are two basic aspects of modern humanistic culture that bear particular significance for its perspective development and its role in human life: a great responsibility in forming the advancement and ultimate aims of modern civilization, and the search for modern concepts of values, for self-respect and fulfilment. That kind of confidence in science is derived from the ideas of the early seventeenth-century philosophy of Francis Bacon. But is the social significance of science really limited to production of 'tools' of action? Can it remain neutral as regards their application? This question exceeds the frame of Bacon's philosophy. Science still must serve the social and material advancement of civilization, but it must also undertake the new tasks of preserving and perhaps amending that civilization.

Scientists called forth as experts must frequently consider not only technical problems but also the moral implications of planned actions. In our times science can no longer remain neutral. It has to be involved in these important new tasks surrounding rational control over the advancement of civilization towards public weal; this is true both for the objective, material and social reality, and for people's subjective experience. It is a question of a programme for the renewal of the 'world of objects' and the 'world of human beings'.

The essential problem of that latter sphere of reality concerns the value of life. Modern people are much better prepared for action than for living. People have acquired the ability to 'do' but they are not able to create a life that provides moral satisfaction and a sense of value. Various distortions of the consumer civilization arise from the feeling of sterility and emptiness of life, so that people seek artificial stimuli 'to keep on going'. How to bring a sense of value to human existence? How to make life worth living? Those are the questions of modern civilization, which – as someone has said – stopped being a civilization of aims and became a civilization of means. Perhaps we really know better *how* to act than *why* to act?

These anxieties give rise to a model of life in which pursuing ever-new aims is of utmost importance, as it helps to organize everyday activity, making it always more dynamic. But then life becomes, in fact, 'a means of living' instead of satisfying an existence which has its own inherent values. The nature of people is such that they find satisfaction and fulfilment in action, constantly pursuing some future goals and always surpassing their own achievements. Yet does the essence of life lie only in organizing and utilizing it? Or is it a value in itself?

The concept of human life as a system of autonomous, non-instrumental values, important in themselves and not as a means for achieving some other goals, forms a base for reshaping the modern civilization of objects into a civilization of human (and humane) beings. A non-instrumental orientation in life ought to be defended and disseminated. This issue concerns the whole culture as well as all spheres of human activity which can be regarded either as means to other aims or as values in themselves. From this point of view, science, art, technology, work, and morality must not be treated solely as 'means' leading to particular goals, but as independent, autonomous values. Acceptance of such a model of existence allows us to solve the problem 'science versus value of life' in a way different from those most frequently formulated.

Science is an important factor in creating value of life in that it opens the way to intellectual experience, to cognitive passion. Universality of science, which is a matter of much consideration, means not only an increasing number of people with higher education performing functions that require sound knowledge and scientific methods. It also means that a growing number of people – owing to higher education – can experience that particular satisfaction which arises from scientific cognition. What is the value of life, after all, if it resolves itself into fruitless labour, shallow entertainment, egoistic relationships and directing all efforts towards a higher material standard? Only when we are able to attain better knowledge of reality (that which we directly experience as well as that which is past), when we develop and satisfy our curiosity of the world – only then is our life truly valuable.

Over a century ago Renan recognized the dangers of a civilization which reduces human life to purely instrumental interests. His opinions were not isolated. Let us recall the memorable words of R. Poincaré: 'I shall not say: science is useful because it teaches us how to build machines; I say: machines are useful because one day, working for us, they will leave us more time for science'. That 'one day' has just come. Science is precious simply because it fulfils cognitive passion, makes activity more interesting and absorbing. It helps to create the 'quality' of life.

Retaining its role in preparing people for life in society and for professional activity, education has become a value in itself, desirable not only as an efficient way of obtaining promotion, better salary or higher social standing, but also because it helps to develop and satisfy our intellectual interests, makes our life fuller, richer, more exciting. Along with education one attains a form of happiness arising from the sense of value of life.

So far those processes have not been very widespread. However, they appear in many countries as a forerunner of essential changes in valuation of the social role of education, including changes of motives which drive people towards education. It is perhaps the most fundamental – however underestimated – problem of the future. Under these new conditions it would be an anachronism if the function of the educational system remained limited to vocational training, and did not attempt to satisfy human needs in the sphere of general education on a higher level.

The need for 'education as such' will constitute the most valuable element of the future society, in which on the one hand, a growing number of people will have to improve their professional capacities, and on the other, more and more people will want to widen their cultural horizons in the field of their personal interests.

Those needs are already shaping a new style of life. Instrumental approach to education regarded as an element of occupational activity links people to their social role and ensures them material support. 'Disinterested education', on the other hand, makes life rich and diversified, colourful and fascinating. Reorientation of attitudes towards anti-consumption can be achieved sooner under such conditions than under the influence of any other stimuli.

Understanding that education is not only a tool for achievement of social and professional position, but is also an autonomous value which makes life 'worth living' – is a key to understanding future society, and especially the role of higher education.

5 The Concept of Life

Recognition of the autonomous value of science in the educational activity of universities leads to the most important as well as most difficult problem of all, that is to the question: What is the way to live and why should this particular way be chosen?

Those are the fundamental questions of human existence. If a great dialogue between different cultures of the world is to be carried on, and if it is to lead to the establishment of a new cultural order, these questions cannot be avoided.

Have we the right to demand that universities – among other institutions of modern society – attempt to answer those questions? If we believe that universities must not avoid such problems, it is because the humanistic vision of life will find support only in universities; without them it would be impossible to overcome the dangers brought about by modern industrial civilization.

What is the role of the humanist in the world of technology, industrialization, computers, scientific organization of work and management, in the world of entertainment industry and mass culture? When there is need in this modern world for reform and improvement, it is not the humanists who can perform the task. In the struggle for the preservation of our natural environment, humanists have nothing to say – it is the doctors, biologists and engineers that are relied upon. The so-called dissemination of culture most frequently means spreading cheap entertainment while producers of cultural rubbish take advantage of primitive tastes.

In that atmosphere of difficulties and accusations, distrust and scorn, humanistic culture has been led astray. Some of its proponents see its purely traditional, historical value, devoid of associations with modern civilization and its development; thus alienated from life it assumes a doomed position. For some people it becomes an object of sophistication bordering on snobbery; at the cost of obscurity and incomprehensibility an isolated kingdom is being created until someone dares say 'the king is naked'. Under these conditions humanistic culture remains only a school subject, fruitless and mutilated, appearing in people's lives as a faded memory or commonplace stereotypes, occupying the narrow space that is left between work, entertainment, and sleep.

What perspectives can oppose such a disturbing and difficult situation? Modern civilization is a complicated form of human existence. Only superficially it may appear as a 'civilization of pressed buttons', and only metaphorically can we talk of 'thinking machines'. For finally it is humans who think and act with the help of constantly improved instruments. And only people can control the socio-technological reality they have created and continue to develop. Therefore men and women are not only 'workers' in the world of machines, but also managers. Degradation of men and women in the modern world must be counteracted by responsibility. The future order of the world will emerge as a result of the dialectical interaction of activity directed against the chaos of objects and chaos in humanity. It calls for reconciliation between people and their civilization of science, technology and organization of life. Such reconciliation would mean that people ought to adapt themselves to the modern conditions of life while these conditions, in turn, should be adjusted so as to satisfy and stimulate more ambitious human needs.

The general improvement of people and objects is a very ambitious programme. Yet if we do not manage to fulfil it, our world will perish. It is difficult to say which is more impeding to a realization of that programme: objects or human beings. Perhaps when we realize the limitations of the growth of civilization, we shall efficiently direct the efforts of scientists towards the goal of protecting this civilization they have created. Maybe, once we begin to recognize the social and mental barriers to development and preservation of civilization, we shall see the new role of culture, particularly in shaping motives for human activity and a sense of existence.

What is the mission of humanistic culture?

In the broadest sense it consists in teaching people how to organize the world they create and live in, so as to make it more humane. It is a great, and in a sense, a new task.

Here opens a vast field for study that has been neglected thus far. Social, economic, and legal sciences will have the opportunity to offer their expert contributions, and carry on a dialogue with politicians responsible for introducing new forms of public life and controlling the country's development. These goals are becoming integrative and orientating factors in the social sciences. Their methodology takes shape under the pressure of the need for attaining the highest possible efficiency. The whole new praxiological terminology is becoming generally accepted. It must define particular elements and conditions of the strategy for action, decision-making, optimization of results, assessing proper parameters, etc. Social sciences tend mostly toward informatics, which may be differently interpreted but must always lead from facts to management.

Here, too, we touch on the central problem of our times. Does the aforementioned tendency of the social sciences really serve the purpose of humanistic culture? In a sense everything that promotes order in the world in which people live serves that purpose but does not necessarily bear direct significance to the humanistic culture. Today, it has become clearer than ever before that it would be erroneous to label all non-natural sciences as social sciences. It would obliterate the specificity of the humanistic sciences which deal with humanity and culture. The fact that humanity and culture exist within social life is not sufficient to define that branch of science as social science; similarly, they cannot be named 'historical' though they 'occur' in the course of history.

The more social sciences – in the strict sense (i.e. sociology, economy, law, politics) – will tend towards praxiological and pragmatic aims, the more pronounced will be the differences separating them from those sciences concerned with humanity and culture. Along with the organization of social practice the most significant question appears to be how to learn and accept humane values.

What is the essence of that sphere of problems? It is closely connected with our quest for the worthy life, for existence justified by satisfaction gained through diversity of experience and activity. It embraces answers to the deepest anxieties of our times, to human alienation, to our feeling of weariness and indifference, to social unrest. Finally, it is a question of the style of everyday life, built in opposition to easy conformity of consumption, to the monotony of the mass production of 'cultural' models.

That is the diagnosis of our situation. Humanistic culture is becoming an autonomous human need in an era in which our praxiological abilities are faced with severe difficulties, in which controlling the development of material and social reality requires not only modern informative science but also modern people. What counts in this harsh and complicated world is not only what we are able to do, but what are our inner values.

Let us make one more step in this future-oriented analysis. Introducing a notion of 'humanistic culture' as an autonomous category of being and getting rid of all direct praxiological association we do not separate it from reality; to the contrary – we render justice to our perennial aspirations, to that driving force that for centuries has made us take all the risks in the process of taming nature and organizing our own environment. As the Romans wisely said, one does not have to live but one must sail. It is this bold and manifold 'sailing' that constituted the essence of the everlasting advancement of humanity. It has been, and still is, an inexhaustible source of humanistic culture.

Even though we have entered an epoch of the civilization of science and technology, still the establishing of the social order based on the principles of equality and justice cannot rely merely on an informative science that teaches us how to control the world, yet leaves open the essential question: why? And although the organization of work and leisure in that civilization seems to embrace all aspects of human life, yet our deepest motives and aspirations, our creative endeavour and search for the beauty of life exceed the limits of the formalized system of dependences and services.

It has been centuries since Aristotle introduced the notions of *praxis* and *poesis* – action and creation, the former understood primarily as moral action, the latter as 'inventive contriving and creating of works'. Later tradition changed the sense of this differentiation: practice became a socio-material category, while creativity became a domain of poetry. This change, however, did not disturb the basic duality which views human activity in terms of necessity and in terms of freedom. Linking art and science Aristotle differentiated them by means of the following argument: the former concerns objects, the latter deals with being. That differentiation was also transformed in the course of history, as science became a powerful force in shaping reality. Yet once again the fundamental sense became intact: people had the capacity for cognizance as well as creation of objects as expressions of self-realization.

In its most essential meaning, culture consists in creation which lies at the source of all action and which constitutes the great poetry of life, the superstructure of existence – cognizable and transformable. Therefore, culture is a fundamental power and value of social existence. Thus was it conceived by Marx who stated in his *Grundrisse der Kritik der Politischen Ekonomie* that the true sense of economy lies in preventing waste (i.e. an organization of production so as to enable people to achieve the fullest possible development):

> Free time [wrote Marx] is both the time for leisure and the time for more sublime activity; that who possesses it is transformed into a different subject; a man thus transformed enters again production processes.

in which we can prove ourselves and develop our creative capacities.

Once the principle of preventing waste becomes a rule in the material-social strategy, we will achieve optimal conditions for freedom; humanistic culture adds involvement to that freedom, thus protecting it against emptiness and sterility of existence. It creates truly humane values.

From this point of view we can recognize the role of universities in moulding the character of new generations so that young people will be able to conceive of their own culture as a system of living and be prepared to undertake a dialogue with other cultures of the world.

Such conception of the aims of universities is not new. The dispute on that particular function of institutions of higher education – and especially universities – has been going on for a long time. Let us recall some of the most important issues that have been repeatedly stressed.

In a collective work *The University Today – Its Role and Place in Society*, published under the auspices of Unesco in 1960, much space was devoted to the 'cultural function of the university'. Lionel Elvin, then the head of the Institute of Education, University of London, postulated that the university

> should aid the society to become democratic and cultured, and aid culture so that while deeply rooted in the native tradition it should become open to universal values.

N. K. Sidhanta from India, with reference to Hindu traditions, accentuated the value of knowledge as leading to wisdom. Professor Alfred Grosse of the Sorbonne stressed the importance of the ideas and practice in creative process. This line of thought was further developed by Robert Ulich, co-author of *The University and The New World*, published in 1962, who pointed out the similarities and differences between scientific and artistic creation, and postulated that the university should focus on stimulating creative attitudes.

This tendency has been also developing in other scientific circles. For example, Robert Oppenheimer – in a 1959 collective work *Issues in University Education* – pointed out that the main task of the university lies in cultivating science in the spirit of 'human commonwealth'.

In a large work edited by Richard Schwarz in 1926, *Universitat und Moderne Welch*, authors from all over the world discussed the role of the university in 'self-knowledge' and attempted to define its substance.

Jean Fourastié has recently turned in the same direction seeking an answer to the question: Are universities a failure? Having analysed their role in preparing highly skilled specialists for the purpose of national economy, he concludes that 'the value which preserves mankind is not the same as those which perpetuate progress. Universities should serve both of those values but first and foremost the latter'.

James A. Perkins, the former head of the Ithaca Cornell University, now director of the International Council for Educational Development in New York, has recently joined the dispute on the socio-cultural role of the university.

The starting point of Perkins's considerations is a conviction that universities are going through a complex crisis.

Apart from dissemination of knowledge, vocational training, and developing occupational skills, universities face a much more complicated task – that of forming valuable attitudes towards life and other people, of seeking to answer those complicated questions, concerning the sense and value of life, which give substance to human existence.

There appears a vision of future society in which work will constitute only one element of our lives. People's participation in social activities, in culture, their personal satisfaction will gain equal importance. Education should serve this purpose; it should be freed of its one-sided dependence on the requirements of the labour market. The University of Vincennes is an example of realization of those new ideas. Its dramatic history, successes and failures have been described by Michel Debeauvis in his 1976 book *L'Université Ouverte – Les Dossiers de Vincennes.*

Only if universities undertake these difficult tasks will they be able to contribute to the great dialogue which is to serve a new cultural order in the world.

VI The Role of Population Education in the New International Order

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Abstract Population education must become an integral factor in the evolution of the New International Economic Order (NIEO). By viewing the alleviation of misery as both a pre-requisite for and a consequence of the NIEO, the argument should be made that such a new order must focus on ameliorating stresses between industrialized and developing countries, between over-populated urban areas and abandoned rural areas. As a means of inculcating social responsibility, population education programmes can provide not only family planning information but also an understanding of the consequences of rural-to-urban migratory patterns, advocacy for general innovation within the educational system, advancement of women in their pursuit of equality, and a personal and social sense of mastery over fate and future. Since the nineteenth century industrialization has required massive in-migrations to urban areas which in turn have demanded heavy capital outlay to establish and expand support system infrastructures. In more recent times these in-migrations have forced planners in developing countries to seek, and sometimes to become dependent upon, foreign capital. One major answer to this urbanization imbalance would be an emphasis on and investment in upgrading rural areas, thus bolstering traditional community- and family-based support systems in an effort to stem the tide of migration and to curtail public services costs.

The nature of the relationship between the industrialized and the developing countries, discussed at two special sessions of the General Assembly of the United Nations and the so-called 'North-South' dialogue in between, has been the great international policy debate of the 1970s. As the Declaration on the Establishment of a New International Economic Order (NIEO) observed, the present order is in direct conflict with current developments in international political and economic relations. Although these political and economic relations are linked to demographic trends, more often than not they reflect a demographic legacy from the past. Education and, more specifically, population education will play a vital role in helping everyone to cope with current demographic realities and to prepare for the changes needed for and which will stem from a fairer international order.

My experience since 1969 as Executive Director of the United Nations Fund for Population Activities (UNFPA) has presented me with an opportunity to study in some detail evolving attitudes and large-scale changes in peoples' most intimate, personal relations. I have also seen how considered, broad-based development plans that squarely address population problems may lead to a better lot for all. Similarly, the evolution of a NIEO inevitably will be influenced by population factors; we will need to understand these demographic influences if we are to assure that they do not promote inequities, as they did in the evolution of the present economic order.

The current order was based partly on historical accident, geographic and climatic differences, agricultural productivity differences, and, as in all human affairs, population trends. These forces established an economic division of the world during the nineteenth century which has persisted to the present. The international economic relations that maintain this division were also established at that time. Countries that became exporters of manufactured goods then generally are termed developed countries today, and those that were exporters of raw materials then generally are classed as developing countries now.

The agricultural revolution in North-West Europe was an important initial cause of industrialization there, yet the demographic consequences subsequently became causes in their own right. By freeing a larger proportion of the population from the need to work on farms, the agricultural revolution opened the way for the development of cities. The cities, in turn, helped promote the industrial revolution.

In the nineteenth century, Europe already had a capitalistic framework in place to support urban industrial specialization. Medieval guilds were among the institutions that facilitated the development of factories. Two new ways of expanding capital, economies of scale (from factory manufacturing) and economies of agglomeration (from the high density of population in urban areas, and hence, easily accessible markets) emerged almost simultaneously. The setting of wages and work hours at levels comparable to those in the agricultural sector assured entrepreneurs of large profits which helped to finance further industrialization.

Two of history's great migrations, occurring simultaneously, introduced European-style industrialization to one segment of the world, but not to the other. The beginnings of the great European colonizing migration to the temperate regions introduced high productivity agricultural techniques there. Since agricultural mechanization was adopted readily in the newly exploited farm lands, very high productivity and high incomes for farmers resulted. Moreover, since the initial lure to migrants had been higher pay than at home, this also produced a high standard of living. General affluence in the newly settled temperate countries led to capital formation which further hastened industrialization.

As 50 million migrants were leaving Europe for the new temperate clime countries, however, another 50 million were leaving China and India to work in the tropics according to W. Arthur Lewis. Agricultural productivity in those two countries, and the wages implied, were less than half those of the European migrants. Thus, the constant influx of low-paid Asian labour into the newly settled tropical countries prevented creation of a broad-based domestic consumer market, capital formation and the domestic industrialization and development that could then have been supported. With such a low wage and price structure, prices for tropical goods became cheap simply because they were tropical. These unfavourable terms of trade have persisted to the present.[1]

The unprecedented rate of increase in the world's population during the twentieth century has exacerbated the structural inequalities inherent in economic and political relationships between developed and developing countries. During the second half of the nineteenth century, Europe's population grew at an average rate of 0.7 per cent annually, at which rate the population would take 98 years to double. During the third quarter of this century, the rate in Asia was 2.0 per cent annually, which implied a doubling time of 35 years; Latin America's 2.8 per cent annual rate of increase implied a doubling time of just 25 years.[2] Such rates of population increase pose challenges to development and industrialization efforts of a magnitude far greater than any which Europe faced in the nineteenth century.

Urbanization was, and is, a demographic phenomenon with far-reaching economic consequences. Although urbanization makes substantial demands on capital for infrastructure and the development of public services, in nineteenth-century Europe the needs for this purpose were much lower than in the developing world today. This is because rates of urban growth today far outpace anything in the past.

Developing countries now face immense urban-related capital needs. Cities whose population nearly triple in just 20 years require vast expenditures just to maintain the most basic public services for those exploding populations. The fact that modern industrial technology is capital-intensive, unlike nineteenth-century Europe's ingenuity-intensive industrialization, further aggravates the financial plight of developing countries.

A major cause of urbanization has been population growth in the rural, agricultural sector. Since the increased number of people there leads to further subdivision of farms already too small for efficiency, the natural increase in population seeks employment in towns and cities once economic development has begun.

In nineteenth-century Europe, rates of urbanization were not explosive. Because cities had been developing gradually in the latter part of the Middle Ages, they were better prepared to absorb the influx of migrants from the rural countryside. Furthermore, Europe's population growth rates were nothing like those in the developing world today. Thus there was not the same large stream of rural poor seeking employment in the cities.

During the nineteenth century, tropical country urban centres held little economic attraction, in part because economic activities were centred around plantations and other enterprises that could effectively use low-paid labour.

Although population growth was substantial in these countries, urbanization was not rapid.

W. Arthur Lewis has observed that in 1890, 48 per cent of Germany's population already lived in urban areas. Since the country's population was growing at the modest (compared to today's developing world) rate of 1.2 per cent, the natural increase in population could be absorbed into towns if they grew by 2.5 per cent annually. That was, in fact, the rate of urbanization in Germany.[3]

By contrast, in numerous Asian and African countries today, only one-third of the people live in urban areas. With national population growth rates of 3 per cent or more, full absorption of the increase in population into cities calls for urban growth exceeding 9 per cent annually. This clearly unsupportable rate doubles populations in just 8 years.

The exodus of peasants from the poverty-stricken, over-populated countryside has created severe problems in the cities of the Third World. While in 1950 there were only twenty-three urban areas in the Third World with populations over 1 million, by 1975 there were ninety and by the year 2000 there may be over 260. By the end of this century nearly one-fifth of the population of the developing world may live in cities of 1 million plus, up from less than 3 per cent in 1950.

In virtually all developing countries, the story of mushrooming urban growth is the same – major cities are becoming enormous and cities whose names are printed in tiny type on maps only a few years old now also are becoming megalopolises. Kinshasa's projected 9.1 million residents in the year 2000, up from only 164,000 in 1950, will qualify it as the largest of four cities in Zaïre with populations over one million; the names of the other three are Kananga, Lubumbashi and Mbuji Mayi. In Nigeria, only Lagos had attained a population exceeding 1 million by 1970; in the year 2000, its 9.4 million inhabitants will qualify it as the largest of twelve cities with million-plus populations. In Pakistan, Karachi's population may increase to 15.9 million by the end of this century, up from 3.3 million in 1970; in Brazil, Curitiba's population may nearly quintuple during the same period, to 4.4 million.[4]

Cities are not inherently evil; they possess considerable economic advantages related to economies of scale and agglomeration. Furthermore, when they offer adequate services they can be pleasant places in which to live. But, for most of their inhabitants, those who live in shanty towns or even in the streets, Third World cities are squalid and miserable. Governments face the problem of allocating scarce capital to provide sanitation, transportation, housing and other services – immensely expensive tasks in cities that have not had time to develop infrastructures.

The problems of capital allocation resulting from Third World urbanization are economic problems, but there is a humanitarian issue also. Despite conditions of massive unemployment and squalid city living, rural migrants still seem to prefer this to conditions in the countryside. Otherwise, why would they migrate? A major answer to the problem of the misery of cities might be to make rural areas more livable. Furthermore, rural development plans might help to preserve traditional community- and family-based support systems, which once acted to prevent utter destitution among the least fortunate individuals.

The break-up of family and village units because of the migratory flow into cities is a major reason for the decline of these traditional institutions. Here again we should recognize that conditions are substantially different from any in the past. As the late E. F. Schumacher observed:

> Poverty may have been the rule in the past, but misery was not. Poor peasants and artisans have existed from time immemorial; but miserable and destitute villagers in their thousands and urban pavement dwellers in their hundreds of thousands – that is a monstrous and scandalous thing which is altogether abnormal in the history of mankind.[5]

The alleviation of misery is both a pre-requisite for and a consequence of the NIEO. An internal restructuring and redistribution within developing countries, a direct attack on poverty and its causes – these are essential components of the NIEO. The NIEO must help bring the fruits of economic development to a greater proportion of the world's poor.

Ultimately, a slowdown in the world's rate of population growth offers promise for securing economic and social equity – both for individuals and nations. With such a slowdown, some of the decisions about allocating insufficient development funds that cause development planners such anguish would become less painful. Today, planners must agonize over whether scarce resources should be spent on maternity health services for ever-increasing numbers of births or on education of those already born so that they may promote a country's development. This is only one of a myriad of dilemmas that must be faced to meet urgent needs in the face of rising expectations, even as economic dogma dictates greater attention to the financing of future economic growth. Perhaps the most heatedly debated issue of this type is: how much of our scarce resources should we devote to cities and how much to rural areas?

The needs approach adopted by UNFPA implies devoting priority attention to rural areas, because this is where most of the absolutely poor live. A major component of rural development plans should be population education. In much the same way that high rates of natural increase in rural populations lead to disproportionately rapid increases in urban populations, a decline in rates in the rural areas may be expected to lead, in due course, to an even more pronounced decline in the rate of urban growth. Efforts to alleviate utter poverty in rural areas might help this trend by lessening the push and pull effect due to the relative economic allure of rural and urban life.

A slow-down in national rates of population growth, with an attendant and potentially even greater decline in rates of urbanization, may be expected to have a still greater effect on nations' capital needs. The immense needs for urban infrastructure development might not amount so rapidly and a more effective effort to provide services until now neglected would then be possible.

The capital needs of developing countries have been an integral part of the intertwined problems of ballooning foreign debt, natural resources and agricultural produce exports at depressed prices to meet interest payments, balance of payments deficits, inflation and turmoil in currency markets. A reduced need for foreign capital stemming from slower urban growth might help alleviate these problems and ensure a NIEO that does not lurch from one financial crisis to another.

Even as we point to the benefits of slower population growth, however, we should guard against unrealistic expectations of an imminent transformation to a world with no population growth. Although there have been some impressive signs of fertility decline in the developing world, the pattern has been very uneven. Further, the signs of a levelling off or fall in fertility rates, however encouraging these might be, should not obscure the reality that the trend is occurring at a very high level of actual numbers of people. And, because some 40 per cent of the population of the developing world is under 15 years old, their greatly enhanced chances of living to a ripe old age mean that new births will not be equally counteracted by deaths for many years to come.

The most prevalent demographic misunderstanding that I encounter is the tendency to confuse fertility rates with population growth rates. Even if the trend of reduced fertility rates continues and reaches replacement level fertility – a level at which each generation of parents replaces itself with an exactly equal number of parents – there would still be a long lag before world population stabilized. The demographic forces at work virtually assure a world population double today's by the first part of the twenty-first century.

It is important to understand this phenomenon for two reasons: first, to guard against a false sense of complacency that the rapid rate of population growth has suddenly ground to a halt, and second, to emphasize that population education and family counselling will be even more essential in the years to come. The phenomenon is not an abstract demographic projection – it relates to people already born whose family welfare, and the welfare of their nations, could be jeopardized unless they are educated to the consequences of their fertility behaviour and the role they can play by regulating fertility.

Over a two-decade span starting from the early 1950s, the developing world's population increased some 55 per cent. As women born during this period grow up, the effects of improved health care and, particularly, greatly reduced infant mortality rates appear. So, between the early 1980s and the first years of the next century, the number of 30-year-old women – women of prime childbearing age – will increase by some 67 per cent. Thus, even for the absolute number of new births to remain constant, a major change in fertility behaviour will be required.

Population education can play an invaluable role in such areas as this – by informing concerned people not only of what is probable but also what is improbable. Because all people are population actors, making population-related decisions throughout their lives, and in turn influenced by the decisions of larger groups and masses of people, all people have a right to be aware of such facts. Planning for a more equitable future international order requires realism – not hysteria or complacency.

Population education is designed to help people understand the nature, causes, and consequences of population changes and trends. It is directed at people – as individuals or as members of groups, as decision-makers or potential decision-makers within their families, as citizens within a community, as leaders within a community, as leaders within a society and as policy-makers within a nation. Because of the subject matter's wide-reaching ramifications and consequences, population education is also a response to contemporary economic, social and political issues.

For policy-makers involved in national development planning, a better understanding of the dynamics of population's inter-relationships with other socio-economic variables is vital. Far more work of a scholarly, academic nature will be required to explain the role population played in the evolution of the current international economic order. With a better understanding of the past, planners may be better able to guard against establishing a new set of inequitable relationships.

Although a better understanding of how currently developed nations industrialized may prove instructive, we should be cautious in attempting to employ their experience as a model for today's developing countries. Current problems of rapid population growth, explosive urbanization, the sudden removal of traditional support mechanisms and the attendant helpless misery are unique in all of history.

Population education efforts supported by UNFPA have been responsive to these trends and to these changed perceptions of problems. An increasing proportion of Governments' requests for assistance now relate to rural development plans. Although family planning continues to be the Fund's largest allocated budget sector, these allocations help support national programmes which, because of their comprehensiveness, several countries now prefer to designate as family welfare programmes. This designation covers a broad range of activities, including population education, which are designed to revitalize certain traditional support systems and establish new ones. In this way the sense of helpless misery, with nowhere to turn, experienced by so many of the world's poor may be combated.

Project expenditures by the Fund specifically earmarked for population education and communications have increased from about $4 million in 1973 to about $11 million in 1978. Although emphasis continues to be placed on training, advisory services and research; non-school education, particularly for out-of-school youth, is receiving increased attention. For example, in India, Jamaica, Nepal, Sri Lanka, Thailand and Tunisia, the Fund supported training of officials in charge of industrial unions and rural co-operatives so that they could promote understanding among the members of the relationship between population and individual and community welfare. In the Philippines, UNFPA helped strengthen the Department of Social Welfare to enable it to educate out-of-school youth on the socio-economic development implications of population growth and on sex and responsible parenthood.

An example of a family welfare programme integrating population education is Kenya's Programme for Better Family Living. This project, actively supported by UNFPA, was initially designed to co-ordinate the efforts of various ministries and agencies to educate rural families to the relationships between family size and their use of resources and services. The programme has subsequently come to stress more the use of information to solve problems. The educational effort introduces population factors into training relating to food, agriculture, nutrition, home economics and other rural development activities.

In Indonesia, a traditional community support organization, the Banjar, is being used to provide information to community residents on family planning. The respect accorded Banjar leaders permits them to counteract the adverse rumours that so often plague family planning programmes. Furthermore, since Banjars have always been an institution dealing with matters of general social concern and collective responsibility, population education is a natural modern addition to the Banjars' continuing role.

The Population Education, Research and Communication (PERC) project, supported by UNFPA, is directly related to family-based rural agricultural development projects in a number of countries and regions. It introduces and strengthens population education in the curriculum of rural training institutions and the field programmes of rural development agencies while helping to train experts for continued work in population-related rural development projects. With the assistance of national institutes in developing countries, PERC organizes research which should provide theoretical guidelines for Governments' rural development plans.

What effect rural development projects employing a needs approach to attack poverty and inequity may have on fertility behaviour is a question of some concern, since today's socio-economic background differs so profoundly from that which produced the Western European demographic transition. However, tentative evidence from two areas, Sri Lanka and Kerala State in India, suggests that a secure and equitable social and political environment, but one not necessarily economically affluent, may foster fertility decline, at least if people are educated to those means by which they may control their own fertility.

The new theory of demographic transition suggested by the striking fertility declines in Sri Lanka and Kerala is that the degree to which all segments of society share in the benefits of the modern, organized sector will be associated with fertility decisions. Without support systems (either traditional, community-based or modern – education, employment insurance, pensions, etc.) couples must view the family as a survival mechanism, and structure it accordingly. This has generally led to a desire for many children, especially sons. However, when the nation-state assumes many of the basic welfare and protection functions traditionally fulfilled by children, a large family comes to be considered unnecessary and even undesirable.

Education, many studies have shown, is correlated with changes in fertility behaviour. Yet, the relationship appears to have less to do with the traditional aspects of schooling, which often are forgotten quickly, than with incidental aspects of socialization. Particularly important are the attainment of a sense of individual mastery over fate and future and a greater openness in social attitudes. The former tends to increase parents' sense of the intrinsic value of the individual child, rather than just the child's utility; the latter is associated with greater receptiveness to modern technology and acceptance of such novel ideas as women working outside the home.

Population education has the great advantage of teaching people lessons and skills which vitally affect their lives and are therefore likely to last a lifetime. The issues need not be politically sensitive, for they build on what is demonstrable in the society, yet, the egalitarian attitudes which may be fostered should go some way to lessening inequities within societies.

In Sri Lanka, the Ministry of Education inaugurated a population education project in July 1973 with the assistance of Unesco and UNFPA. The project has evolved to introduce population-related topics to children aged 9 and 10. Beyond the introduction of population concepts, the curriculum provides for the development of a reorientation of attitudes and values relevant to decision-making. What local authorities refer to as the 'affective category' of the curriculum deals with such matters as: the value of love, brotherhood and sharing; the value of compromise; the value of saving; and, respect for the environment and resources.

Although the concepts may be novel and complex, Sri Lanka's educators have found that they can be assimilated easily if presented in the form of games. For example, the 'life game', employing a playing board with sixty-four numbered squares, dice, and coloured tokens, serves to show the student how his own decisions can affect others. If a throw of the dice lands a token on one square, for example, the card corresponding to that square might describe a life situation as follows:

> You have many people at home. Your expenses are high. Because of many people, on whom much of your time is spent, you also have less time to devote to your farm. Hence, your farm gets neglected.[6]

This is an example of how education can focus on the relation between population and the quality of life, and between population and the development of population policy. Population education can deal with both the cognitive and affective, going beyond knowledge and skills to the exploration of values and attitudes. The student can do research in his own community, which has cultural and educational traditions that he is familiar with and which are important to him. And his attention can be directed to the interdisciplinary content and the global connotations of population problems.

Population education is not a euphemism for birth control or family planning education, although information concerning both might be included in the content of the programme. Nor do population education programmes preach an end to rural-urban migration, although an understanding of the consequences of that migratory pattern, and governmental actions developed in response to that understanding, may have some effect on the problem over a period. Population education programmes are an effort to show the inter-relationship between the public and the personal in the hope that individual and public decisions will result in an enhanced quality of life for all; they are educational programmes for social responsibility.

Population education programmes contribute, as well, to general innovation within the educational system. The way the programmes and materials are organized, structured and presented is different from what is most common in educational settings, both in the developed and developing worlds. Instead of knowledge for its own sake, this educational process seeks to present relevant knowledge for its potential contribution to social responsibility. Instead of teaching certainty, as if all that we need to know were known, it assists to prepare the learner for the uncertainties of the future.

Population education may help to secure equity for the one half of humanity – women – who must be mobilized to assure the progress required if equity within the international framework is to be achieved. Permitting a new equity to prevail in the status of women must also involve not only an education effort directed at women, but also the education of men so that they may provide support for women's improved position. A fundamental re-education of men may be called for in cultures where males need to validate themselves through fathering. A particularly difficult problem is posed when men's attitudes to women are such that they view women's desire to control their own fertility as an attempt to facilitate promiscuity. Improved understanding and equity between men and women, just as among nations, is an important goal for population education.

Population education programmes are designed to give individuals greater mastery over their actions and the knowledge necessary to take steps open to them and to society in order to influence population trends. If we value freedom, this is an admirable goal. And if we wish to assume mastery of our future, rather than always having to react to crises, we have no other choice.

The present international economic order has produced standards of living for a minority of the world's people that surpass the most fanciful dreams possible 150 years ago. We should not lose sight of this fact because it points to possibilities for economic transformation that could lead to an improved lot for the majority of people who live today in poverty. By according the necessary attention to population education, we should be able to facilitate and hasten the transition to a NIEO in which sufficiency for all remedies the distortions of both excess and deprivation.

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VII The Contribution of Higher Education to a New International Order

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Abstract Several factors inhibit the full participation of developing countries in the shaping of a New International Economic Order. The two primary reasons are: a shared belief in the developed countries' definition of development as evolving from highly organized planning of financial investment and technology utilization, and the growth of a transnational segment of population within many developing countries. At the base of these situations is the subsidiarization of higher education institutions in developing countries. As seen in Chilean universities, and specifically the National University, subsidiarization is an outgrowth of the policy of sending undergraduates abroad to study in developed countries, establishment of new departments in home universities outside the professional disciplines and staffed by teachers trained in developed countries, Programs of Cooperation between institutions in developing countries and those in developed countries which lead to the subordination of research in developing countries to the aims of research in the developed countries. Ultimately, subsidiarization has created groups of an educated elite who will be delegated to attend conferences regarding the NIEO, but who more realistically reflect the development values of the developed countries where they were trained rather than the developing countries they are designated to represent. Policy directives for institutions of higher education in both developing and developed countries include increasing enrolments to expand access beyond the transnationalized segment in developing countries, regular review of teaching programs focused on developing countries but offered in developing countries; such reviews must increase the number of students and faculty from developing countries involved in this process.

1 Obstacles in the Road to Full Participation by Developing Countries in the Shaping of a New International Economic Order

With the adoption by the United Nations General Assembly of the Declaration and Programme of Action on the Establishment of a New International Economic Order (NIEO) in May 1974, the developing countries made a significant progress along the road leading to their full participation in the decisions that shape the international order. The Declaration not only recognized that 'the developing world has become a powerful factor that makes its influence felt in all fields of international activity', but adds that 'these irreversible changes in the relationship of forces in the world necessitate the active, full and equal participation of the developing countries in the formulation and application of all decisions that concern the international community'.[1] The Programme of Action, in more concrete terms, demanded:

> full and effective participation of developing countries in all phases of decision-making for the formulation of an equitable and durable monetary system and adequate participation of developing countries in all bodies entrusted with this reform and, particularly, in the Board of Governors of the International Monetary Fund

and also

> more effective participation by developing countries, whether recipients or contributors, in the decision-making process in the competent organs of the International Bank for Reconstruction and Development and the International Development Association, through the establishment of a more equitable pattern of voting rights.[2]

The superpowers and the powers that once decided among themselves the fate of the people of the developing countries had thus come to accept the principle that the latter have the right to defend for themselves their legitimate interests against those of the developed countries in the different world fora. After these initial formulations, there have been enough additional declarations by different organs of the United Nations and of other international organizations to justify the assertion that the developing countries will play an increasingly important role in the several international conferences and organizations that will eventually create a NIEO.

This important political step forwards for the developing countries should not, however, be overestimated. The fact that representatives of the developing countries will, from now on, sit together with those of the world powers at the conference tables where decisions relevant to the world order are made does not necessarily imply that the new world order will adequately protect the interests of the developing countries. Two inter-related reasons may dilute much of this fact's meaning.

First, the powers may still keep much of their privileged position in the world order by systematically taking advantage of the fact that there exist a vast number of accepted ideas and beliefs about the process of socio-economic development and its determinants, which are shared across a line that divides the developing countries from the developed ones. For example: development is a process that should be planned by experts and carried out by big formal organizations; it requires massive transfers of financial resources and technology from the developed countries; only the most advanced, capital intensive technology can solve the problems of developing countries. Since the developed countries control the expertise, the financial resources and, particularly, the process of technological innovation, such ideas and beliefs put them in a position to dictate the terms of exchange between these goods and those that the developing countries have to offer (basically, still, raw materials).

No longer by the superior force of their armies, but by their superiority in a supposed 'development know how', the developed countries could still carve a world order in which their share in the total income generated by the world's productive activities would be disproportionately higher than that of the developing countries. And this new unbalanced world order would have been achieved with the consent of the developing countries; in other words, it would be a legitimate world order.

Second, the years since the end of World War II have witnessed the emergence inside the developing countries of a social stratum that by their patterns of housing, dressing, eating, leisure etc., are closer to the people of the developed countries than to their fellow countrymen. It is composed mainly of professionals, technicians, high-level government employees but also includes those industrial workers employed by the multinational corporations and paid according to international standards. A very unequal income distribution that favours this stratum to the detriment of the majority of the population makes this possible.[3]

The similarity between this segment of the population of the developing countries and the majority of the population of the developed ones goes beyond patterns of behaviour. It includes ideas and beliefs, and especially those ideas and beliefs about the development process mentioned above. Therefore, if the representatives of the developing countries in the world fora where the NIEO is being forged are chosen from among this segment, there is a strong probability that they will concur with the representatives of the developed ones about the rate of exchange between the products of their countries and about the factors assumed necessary for development and controlled by the former. The 'objective' interests and ideas of these representatives of the developing countries would tell them which is the proper position of their countries in the world order, as chronic borrowers of expertise, financial resources and technology.

If the developing countries are to obtain a truly new, more balanced world order out of the process that will take place in the coming few decades in the different international fora, then they must come to terms with these two realities.

2 Historical Origins of These Characteristics

The first step in attempting to remove a social reality that blocks the road to social progress is to understand how and why it emerged. The emergence of the transnationalized segment of the population of the developing countries and its ideas and beliefs is due to the particular circumstances in which the world economy was reorganized after the long disruption brought about by World War I, the Depression and World War II.

In the first place, the colonial empires were rapidly disappearing, leaving in their place a number of new independent nations ruled by a coalition of social forces committed both to nationalism and to development. Besides, during the years of crisis of the world economy, the already independent countries had embarked upon policies of industrialization led by coalitions of entrepreneurs, urban middle classes and industrial workers. Tariff barriers or outright import prohibitions were in force in most of the developing countries and state enterprises were becoming the main engine of industrialization.

In the second place, an alternative model of development was being pursued by the socialist area, greatly enlarged by the incorporation of Eastern Europe and China, and this model was being offered to the developing countries by their communist and socialist parties.

In the third place, the old centre of the world economy, Western Europe, had suffered extensive destruction of its infrastructure during World War II, and was leaning towards socialism.

In these circumstances, the leading country in the capitalist world, the United States of America, adopted a series of policies, both public and private, aimed at reconstructing the world economy. Although detailed discussion of all these policies is not germane here, three of them need to be discussed as far as developing countries are concerned since they were instrumental in producing the transnationalized segment of their population: private direct investment in the manufacturing sector, public loans to States and State enterprises, and technical assistance.

Private direct investment in the manufacturing sector was offered as a contribution to the industrialization of the developing countries, by bringing in much needed capital and technology. Public loans were intended to help the state enterprises to expand the public sector of the economy, and particularly the infrastructure of roads, ports, energy, etc. Technical assistance was perceived as a means to overcome the lack of personnel necessary for the multiple new roles of an industrial society.

Quite independently of the aims of those who conceived these policies, foreign direct investment in manufacturing resulted not in a transfer of capital and technology, but in the establishment of subsidiaries of multinational corporations that brought in scarce capital and the technology needed in the final phase of production of consumer durables. And for this rather limited contribution, developing countries had to pay a high cost, not only in terms of a deterioration of the balance of payments due to the remittances of profits to the parent company, but especially in terms of employment and patterns of consumption. Because of their labour-saving technology, the subsidiaries created a limited amount of jobs, while at the same time putting out of business scores of local companies and artisans of lower productivity. This way, a new category of workers was created, small in numbers and receiving higher wages than before, whose relative welfare came to depend upon the continuous presence of the foreign companies in their country. At the same time, a new much bigger category of unemployed people was created. More important even than their impact on employment was the impact of the subsidiaries on the patterns of consumption in developing countries. Because of their sophisticated advertising techniques, and the clever branding and packaging of their products, these companies were able to shape the demand to the point of elimination of possible alternative ways of satisfying the needs. Public loans normally included a clause requiring that the money be spent in buying capital goods and technology from the lender country. Since the technology available in the lender country was, again, labour-saving, state enterprises came to produce effects on employment similar to those of the foreign subsidiaries. Technical assistance ultimately induced the developing countries to adopt solutions to their problems that implied the continuous importation of capital and technology from the countries providing it, therefore reinforcing the effects discussed above.

Certainly, these were not inevitable consequences of foreign investment, loans and technical assistance. Developing countries could have insisted on an adaptation of the technology brought by the multinational corporations to the local situation, put limits to the remittances of profits, and control the extent of advertising. Similarly, they could have required more freedom in the use of loaned money; they could have carefully scrutinized proposals of the technical assistants rather than blindly following them. The vast majority of them did not do these things. Why?

To answer this question one has to look back at the internal political structure of developing countries. In many of them, particularly in the former European colonies of Africa, Asia and Latin America, the main productive activities and political power were in the hands of a small elite that saw in this set of policies one way to 'modernize' their respective countries without changing the social structure; the amenities of contemporary life would be available in their own countries and the rationalization and bureaucratization of the state would provide a way to transform their uncertain power into domination, simultaneously co-opting new strata of the population. Since their countries had scarcely any industry, there was no internal social group that could feel threatened by the foreign subsidiaries. Therefore, foreign direct investment in manufacture, public loans for development projects and technical assistance were accepted as a package, and a whole series of internal policies were adopted that could allow the country to take full advantage of these new opportunities. Outstanding among these policies were those aimed at producing local personnel for the new enterprises and the new state agencies, and replacing the foreign technical assistance. New educational institutions were designed with this purpose, but since there were not enough local teachers, scores of young people were sent abroad to be educated. When these people returned home, they quickly realized that the possibility of continuing to live at home as they had grown accustomed to abroad depended upon the maintenance of a model of 'associated development'.[4] From their positions in the public sector, in government and in the educational institutions, they managed to keep development on this track.

In other developing countries though, particularly in the independent countries of Latin America, the years immediately preceding World War II had seen the development of a rather important industrial structure, as a consequence of the crisis of the international trade and of a deliberate policy of imports substitution by local production. This process had created inside the social structure of these developing countries an important sector of entrepreneurs and of industrial workers that, in alliance with sectors of the urban middle classes, had been able to replace the landed oligarchy in control of the state. From the state this coalition had pursued a series of policies aimed at redistributing the income generated by the productive process and had increased the educational opportunities of the people. One would have expected these countries to take a very cautious approach towards foreign investment, public loans and technical assistance. The fact that they did not, but rather followed the course of other developing countries, is accounted for by the fact that their industrialization process had reached a point in which further progress required investments in capital goods production of a magnitude so as to require a major structural change. Faced with this decision, full of uncertainties with respect to their position in society, and being offered an alternative path in terms of foreign capital, technology, loans, technical assistance, etc., a segment of the coalition balked and finally threw itself into the 'associated development' path. Such a decision created an intensive struggle for control of the state among proponents of this path and their former allies, anchored in nationalism. This struggle eventually brought the splinter group under the control of the state and both segments to uncompromising positions. In sum, as a consequence of a complex political process very different from that of the first group of developing countries, this second group also adopted without question the 'package' of development.

Similar to the other developing countries, these countries turned their attention to the reconstruction of their state apparatus, aiming at improving its efficiency, and to the reform of their existing educational institutions, in order to bring them in line with the new technology that was supposedly being 'transferred' by all the mechanisms described above. In spite of their highly developed educational institutions, they also discovered the need for training abroad and started sending scores of young people to learn the new disciplines required by development. Upon their return, these graduates reorganized the educational institutions, that began educating at home in the new disciplines the next generation.

By cause of their education abroad, and their work experience in the modernized sector of the economy of their countries, this new generation comes to share the values and beliefs of the developed countries; since the high productivity of the modern sector provides a high level of income for those participating in the process of production, they have the means to maintain a pattern of consumption that is nearly identical to that found in developed countries. The availability and relatively low cost of transportation brings them in personal contact with life in developed countries, and mass media, especially motion pictures and television, contribute to their well-rounded cultural outlook.

3 The Subsidiarization of the Higher Education Institutions of the Developing Countries

Several factors contributed to the emergence of a transnationalized segment of the population in the developing countries: the policies of the new centre of the world economy, the internal political structure of the various developing countries (see Ref. 3), the end of the 'easy' phase of import substitution industrialization, the new international mobility which was brought about by the development of transportation and communication techniques, the action of mass media, the rationalization and modernization of state institutions, and the reform of the educational institutions. Establishing the precise contribution of each factor to the outcome is a task for empirical studies of individual countries. But in shaping a world outlook within this transnationalized segment, and particularly in organizing their ideas with respect to development and the means to attain it, undoubtedly the major responsibility lies in the hands of their own higher education institutions. This is because of the role which these institutions play in forming the intellectual image of the country and in diffusing it throughout the country.

By and large, higher education institutions in the developing countries have been the main agencies of diffusion for a view of the world, and a series of notions about development, that consider as 'natural' and 'inevitable' the present disparity among developed and developing countries in terms of the distribution of the wealth created by the world productive process. It is understandable that these notions should be produced and distributed by the higher education institutions of the developed countries, since they perceive their own countries in a privileged position with respect to the developing countries. But why should these same notions be uncritically accepted and diffused by the higher education institutions of the developing countries?

The reason is that these institutions are, essentially, *subsidiaries* of the higher education institutions of the developed countries. In fact, whether one looks at the curricula, or at the instructional methods, or at the instructional material, or at the education of the teaching personnel, or at the topics of research by faculty and graduate students, one cannot but be amazed by the degree to which these institutions reproduce the institutions of the advanced industrialized countries. This, in itself, would not constitute a problem (after all, there are disciplines, methods and techniques that any physician, engineer or scientist must know independently of his or her country of origin), if it were not compounded by the fact that these institutions are functionally connected with the institutions of the advanced countries that they reproduce in so many ways that the teaching of these disciplines, methods and techniques is done 'as if' the condition of underdevelopment made no fundamental difference.[5] This being the case, how can they produce anything else in terms of graduates than relatively perfect reproductions of the graduates of the parent institutions? Sharing the same kind of education with their counterparts of the advanced countries, the graduates of the developing countries will find it extremely difficult to conceive of a world in which their host countries are not at the creative centre nor their own countries at the reproducing periphery. Quite independently of their patriotism and devotion to the cause of the developing countries, they will come to accept as undiscussed assumptions in the process of building a NIEO those very facts that precisely assure the privileged position of the industrialized countries in the world. Some examples may illustrate the point.

One typical problem of the developing countries is their low productivity in agriculture. The conventional wisdom available in the industrialized countries says that in order to increase productivity one has to use fertilizers and mechanical equipment. Instructed in that wisdom by the subsidiary higher education institution of his country, the agronomist of the developing country will concentrate his efforts on getting better terms for the acquisition of fertilizers and mechanical equipment from the industrialized countries. Even if he succeeds, he will not have done more than reinforce the privileged position of the industrialized countries that export fertilizers and mechanical equipment, because his country will become dependent upon:

(i) a steady flow of imports from the industrialized countries and;
(ii) a steady flow of hard currency to finance such imports, that in the majority of the cases must come from loans or aid from the industrialized countries.

Another typical problem of developing countries is shortage of adequate housing. The conventional wisdom in the industrialized countries maintains that in order to produce mass housing one needs standardization of component parts, industrial production of them and assembly *in situ* with the help of heavy equipment. Instructed in this conventional wisdom at the subsidiary higher education institution of his country, the architect of the developing country will try, as his fellow agronomist, to obtain the best possible deal from the big construction companies of the industrialized countries. And similarly, even if successful, he will only contribute to reinforcing the privileged position of the industrialized countries that can supply construction materials and technology, because the housing policy of his country will come to rest on:

(i) a series of contracts with construction firms of the industrialized countries and;
(ii) a steady flow of hard currency to finance such contracts, that in most cases must come from loans or aid from the industrialized countries.

A third typical problem of developing countries is the poor health condition of their population. The conventional wisdom in the industrialized countries maintains that modern medicine is the answer to that problem, epitomized in the hospital equipped with the most advanced apparatus. Instructed in this wisdom at the subsidiary higher education institution of his country, the physician of the developing country will try to obtain as many hospitals as possible for his fellow countrymen. But again as in the case of the agronomist or the architect, by doing this he will only reinforce the privileged position of the industrialized countries, because the health condition of his fellow countrymen will come to depend upon:

(i) the import of many expensive complete hospitals from the industrialized countries; and
(ii) a steady flow of hard currency to finance such imports, that in most cases must come from loans or aid of these same countries.

The examples could be multiplied and in each instance the conclusion would be similar: the developing countries may not be in a position to take full advantage of their new status in the world because their representatives share one and the same view of the world with the representatives of the industrialized countries. This is a consequence of the subsidiarization of the higher education institutions of the developing countries.

4 Mechanisms and Indicators of Subsidiarization of the Higher Education Institutions of the Developing Countries

If the developing countries want a different international order they must begin by sending to the international fora representatives who understand that the interests of their countries do not always coincide with those of the advanced countries, but rather tend to be at odds with them. Such people are not likely to be produced by higher education institutions that are mere reproductions of those of the developed countries. Therefore, the reorganization of these institutions should be one of their priorities. But, given the extreme degree of subsidiarization reached by most of these institutions, what is to be done?

In the first place, it is necessary to discover through which mechanisms subsidiarization became a reality, because only after their identification will it be possible to dismantle them. This is not an easy task, because each developing country has evolved a particular pattern of relations with the developed ones during its history, and its higher education institutions bear the mark of that history. For example, if one looks at the former colonies of the European powers in the Third World, it is clearly a different story in the former English colonies, or in the former French, Belgian or Dutch ones. But the type of colonial rule does not account for all the observable differences: coming from the same English colonial rule, East Africa, West Africa and the English speaking Caribbean have evolved into very different nation-states, each with a particular set of higher education institutions. And in the case of the former French colonies, Algeria and Senegal show striking differences. Besides, the previous existence in several countries of the Third World of highly developed traditional civilizations, with their own institutions of higher learning, represents a powerful factor of differentiation for their modern higher education institutions: India and Egypt are the foremost examples. And if one were to include the higher education institutions of the politically independent countries of Latin America in this survey, the differences between countries would appear even greater. Nevertheless, these differences are nowhere powerful enough to alter the basic trait of the higher education institutions of the developing countries, that they are subsidiaries of institutions of the developed ones. What these differences do account for is a different pace, depth and extension of the process of subsidiarization.

The identification of the mechanisms of subsidiarization should then be done in a comparative empirical study of the evolution of higher education institutions in several countries of the Third World. The researcher should be prepared to discover that a mechanism that has been central in one country may have played an insignificant role in another, but he should be able to show why this is the case, exploring into the prevous history of the countries concerned and their relationships with the central, dominant countries. As in any research it is necessary to begin with an initial list of mechanisms that will be increased as the research proceeds, elaborated on the basis of the experience of one or more higher education institutions of a developing country. The following is such an initial list, developed on the basis of the study of the experience of the universities of Chile, and, particuarly, of its National University:

(a) Establishment of teaching programmes in disciplines in which there is little or no previous experience in the country. In particular, in disciplines such as the Social Sciences, the Natural Sciences and the new branches of Engineering. Such a policy forces even established institutions to look for assistance in the developed countries. The subsidiarization occurs more rapidly if the new programmes are given autonomy with respect to the established departments.

(b) Establishment of scientific research as a regular institutional activity. This policy brings institutions to a subsidiary condition due to the highly centralized social structure of modern science in which professional recognition is allocated in accordance with contributions to the body of knowledge created and organized to satisfy the knowledge needs of developed societies.

(c) Reliance on foreign experts for the initial years of the life of the new programmes, and on foreign-trained local personnel for its continuation. This policy leads to subsidiarization because the foreign teachers tend to advise their local students to go to their own higher education institution of origin for further education, and when these students return home with their degrees they tend to repeat the process with their own students.

(d) Signing of co-operation agreements with higher education institutions of the developed countries. This does not by itself foster subsidiarization; but if the agreement refers to the areas mentioned under section (a) above, includes basic research, and resorts to the importation of teachers from the institutions of the developed country to those in the developing country, and to the training of the personnel of the latter in the former, then the total subsidiarizing effect may be stronger than it would have been in the absence of a formal co-operation agreement.

This list does not claim to be exhaustive; the detailed analysis of other higher education institutions may lead to the discovery of other mechanisms of subsidiarization. But this does allow the empirical study of the process of subsidiarization of the higher education institutions of the developing countries.

In the second place, it is necessary to construct a series of indicators of subsidiarization to answer the question: how far advanced is this process in this particular higher education institution? In the general process of subsidiarization some institutions may have been more affected than others because of some idiosyncratic properties. The discovery that this is the case may lead the researcher to attempt to identify those idiosyncratic properties with the purpose of basing on them a policy of reorganization of the higher education system of institutions. As in the case of the mechanisms of subsidiarization, these indicators should be established during a comparative empirical study of the evolution of higher education institutions in several countries of the developing world but with the help of an initial list of indicators formed on the basis of the study of the experience of one or more higher education institutions of each developing country. The following is such an initial list of indicators of subsidiarization, again developed on the basis of the study of the experience of the universities of Chile and, particularly, of its National University:

(a) The new programmes of study offered are similar or identical to those of the higher education institutions of the developed countries.

(b) The curricula of these new programmes are a reproduction of those employed in the higher education institutions of the developed countries.

(c) The instructional techniques are also a reproduction of those in use in the higher education institutions of the developed countries.

(d) Teaching personnel have been trained in the higher education institutions of the developed countries.

(e) The list of holdings of the specialized libraries, and the list of subscriptions to specialized journals reflect those in use in the higher education institutions of the developed countries.

(f) Intellectual production of both faculty and students complies with the requirements of the international community of specialists and is published in the specialized journals of the developed countries.

(g) Academic and administrative organization is similar to that of the higher education institutions in the developed countries.

(h) Higher education is normally completed with a degree obtained in a higher education institution of the developed countries.

(i) Localization and physical plant reproduces the pattern of the higher education institutions of the developed countries.

Obviously, as in the case of the previous list of mechanisms of subsidiarization, this list is not exhaustive.

5 A Preliminary Case Study of Subsidiarization: Chilean University during the 1960s

A preliminary study of the evolution of the Chilean higher education institutions since the 1950s shows the operation of the mechanisms of subsidiarization discussed above:[6]

(a) Table VII.1 and Figure VII.1 show that the expansion of the university system in terms of students took place particularly in the social sciences and in engineering, areas of minor importance, in comparison with education, law and medicine, in 1949. Especially in the case of the social sciences, this fact means that the system could not rely on its own resources to cater to the mass of students seeking qualification in these new disciplines, and had to turn to the higher education institutions of the developing countries for teaching personnel, teaching material, training of local personnel, etc. The fact that the new disciplines were institutionalized outside the established professional schools certainly contributed to an almost complete dependency upon the resources of the higher education institutions of the developed countries. For example, in the National University, Sociology could have been institutionalized either in the Department of History of the Faculty of Philosophy and Education, or in the Law School, or in the School of Medicine, where there were important resources and an established tradition of learning related to local needs. Instead, a new Institute for Sociology was established, and a School of Sociology, on the basis of a small group of graduates educated in the universities of the United States. As a consequence

Table VII.1(a) Third-level Chilean students by area of study and year. Distribution and growth indices (1949–1972)

Area	1949		1957		1960		1965		1970		1971		1972	
index				100		187,0		178,0		245,7		337,3		249,3
Humanities			533	(2.8)	1.000	(2.3)	949	(22)	1.310	(1.8)	1.798	(1.8)	1.329	(1.05)
index		100		190,7		291,7		457,2		994,9		1.169,9		1.396,8
Education	2.457	(26.0)	4.686	(26.0)	7.167	(27.5)	11.234	(25.8)	24.446	(31.1)	28.746	(28.0)	34.319	(27.0)
index		100		146,7		226,3		289,7		654,7		736,6		883,4
Fine Arts	634	(6.6)	930	(5.1)	1.435	(5.5)	1.837	(4.2)	4.151	(5.3)	4.670	(4.6)	5.601	(4.4)
index		100		136,4		129,0		158,1		139,2		136,1		171,4
Law	2.170	(22.7)	2.960	(16.3)	2.799	(10.8)	3.431	(7.8)	3.021	(3.8)	2.954	(2.9)	3.720	(2.9)
index		100		730,0		1.178,9		2.256,5		4.836,3		6.218,5		8.497,0
Social Sciences	237	(2.5)	1.730	(9.5)	2.794	(10.7)	5.348	(12.2)	11.462	(14.6)	14.738	(14.6)	20.138	(16.0)
index		100		112,1		221,8		186,6		284,3		503,8		621,2
Natural Sciences	477	(5.0)	535	(2.9)	1.058	(4.1)	890	(2.0)	1.356	(1.7)	2.403	(2.4)	2.963	(2.3)
index		100		372,9		584,2		1.527,9		2.244,1		3.407,7		4.512,1
Engineering	907	(9.5)	3.382	(18.5)	5.299	(20.0)	13.858	(32.0)	20.354	(26)	30.908	(30)	40.925	(32.1)
index		100		131,8		155,6		232,0		443,9		522,4		628,2
Medical Sciences	2.074	(21.7)	2.733	(15.0)	3.227	(12.4)	4.812	(11.0)	9.206	(11.7)	10.835	(10.7)	13.029	(10.2)
index		100		122,5		219,7		219,9		553,9		710,4		918,0
Agriculture	568	(6.0)	696	(3.8)	1.248	(4.8)	1.249	(2.8)	3.124	(4.0)	4.035	(4.0)	5.214	(4.1)
		100%		100%		100%		100%		100%		100%		100%
Total	9.524	100,0	18.185	191,0	26.027	273,0	43.608	458,0	78.430	823,0	101.087	1.061,0	127.238	1.336,0
index														

Sources: Unesco Statistical Yearbook 1963–1964–1969–1972–1975.

Table VII.1(b) Third-level Chilean students by area of study and year. Distribution and growth indices (1973–1976)

Area	1973		1974		1975		1976	
index						755,9		
Humanities					4.029	(2.7)		
index						1.798,2		
Education					44.182	(29.5)		
index						940,0		
Fine Arts					5.960	(4.0)		
index						184,2		
Law					3.998	(2.7)		
index						7.838,3		
Social Sciences					18.577	(12.4)		
index						761,2		
Natural Science					3.631	(2.4)		
index						4.717,6		
Engineering					42.789	(28.6)		
index						864,9		
Medical Sciences					17.939	(12.0)		
index						1.498,2		
Agriculture					8.510	(5.7)		
		*		*		100%		*
Total index	142.513	1.500,0	144.861	1.520,0	149.615	1570.9	139.149	1.461,0

of this policy decision, the initial years of the development of sociology in the country are marked by a high degree of dependency upon North American theories, methods and techniques of enquiry.

(b) Science had been cultivated in Chile for a long time by selected individuals in the framework of the professional schools of the universities, especially that of Medicine, but only in the fifties and sixties did it become a regular activity of full time members of the universities.[7] The establishment of the Sciences Institute at the National University, and the creation of the Science Faculty in the mid-1960s, provided a new institutionalized setting that diverted research from the constraints of practical considerations connected with professional schools, and at the same time oriented research even more so to the problems, methods and techniques of international science, geared to the needs of the highly industrialized countries.

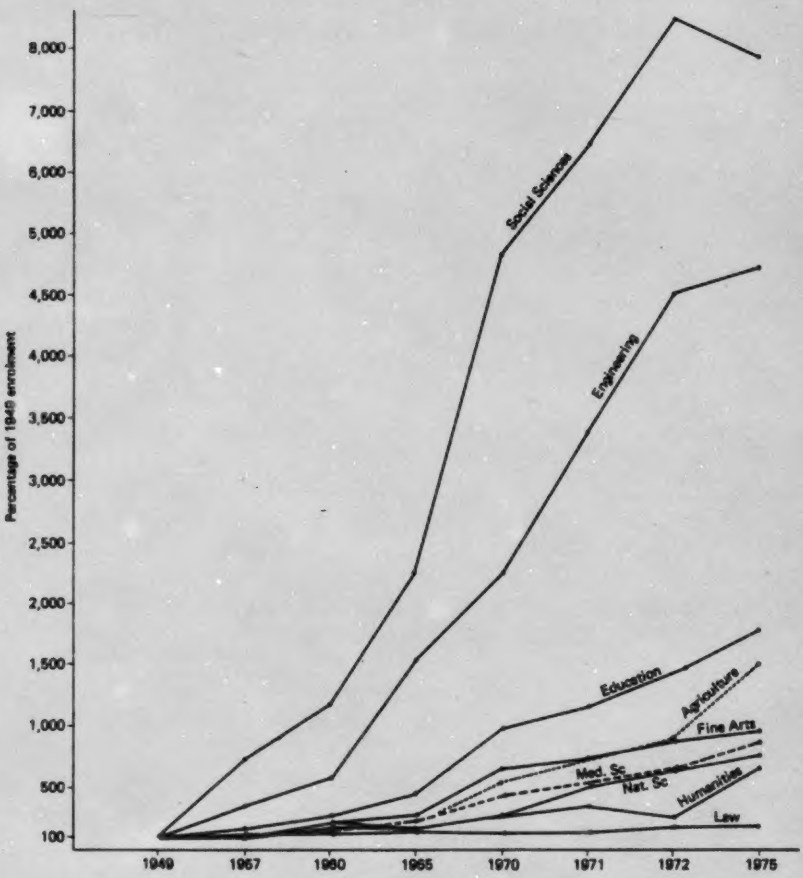

Figure VII.1 Third-level Chilean students. Growth in enrolments by area of study, 1949–75.

(c) Behind most of the new programmes developed by the Chilean universities in the 1950s and 1960s there is either one foreign expert or a Department of a university of the developed countries, or one or more Chilean educated at one of these institutions. In the special case of the social sciences, the development of the discipline of economics at the Institute of Economics of the National University is marked by the influence of the American, Joseph Grünwald; the equivalent of that Institute at the Catholic University of Santiago grows under the shadow of the Department of Economics of the University of Chicago, and especially of Milton Friedman. In sociology, the Belgian, Roger Vekeman, looms large in the initial years of the Institute devoted to that discipline at the Catholic University of Santiago; at the National University there is no such a presence of a foreign scholar or department, but all the first members had been educated in the United States (Hamuy, Sepulveda, Briones, among others).[8] The number of Chilean students sent to foreign universities to complete their education has increased consistently over the years, as shown in Table VII.2, with an acceleration and diversification after 1970. Upon their return, these students took over from the foreign experts, but continue the orientation of their institutes to the foreign 'alma mater' where they had received their graduate education. An example of this mode of development of new disciplines is provided by the Institute for Political Sciences at the Catholic University of Santiago. An essential component of the plan for the development of these disciplines at the University consisted in sending young graduates in sister disciplines to institutions of higher education of the developed countries to obtain their PhDs. Upon their return, they were appointed as Professor-Researchers in the Institute and started teaching to the new generation what they had learned in those institutions.

(d) The pattern of development of the Chilean higher education institutions in the 1960s was considerably affected by Co-operation Agreements with higher education institutions of the developed countries. The paradigmatic agreement is that signed by the National University and the University of California in August 1965, and financed by the Ford Foundation. The areas covered by the agreement were Agriculture and Veterinary Medicine; the Arts; the Natural Sciences, including elements of Engineering; and the Social Sciences. The importance of this agreement for the development of the National University of Chile may be gauged by the numbers of participants (290 Chileans and 260 Californians), level of funding (US $10 million from the Ford Foundation), duration (to the present). Among the fruits of the programme were: skills and knowledge acquired by Chileans in pursuit of their graduate degrees in California (seventy-four Masters, forty-eight Doctors), mostly in Agriculture, the Natural Sciences and Engineering; graduate degree

Table VII.2 Third-level Chilean students in foreign universities, by country and year (1961–1974)

Country	1961	1962	1963	1965	1968	1970	1973	1974
United States	318=100	375 (118.0)	397 (125.0)	525 (165.0)	820 (258.0)	977 (307.0)	997 (313.5)	950 (298.7)
Canada		24=100				64 (267.0)	105 (437.5)	136 (566.6)
France	51=100		51 100.0			48 (0.96)	298 (584.3)	667 (130.8)
Germany F.R.			85=100			157 (184.7)	209 (245.8)	328 (386.0)
United Kingdom	28=100		18 (0.64)			57 (203.5)	67 (239.2)	
Italy	4					24		
Switzerland	19=100	20 (105.2)				18 (0.95)		51 (268.4)
Belgium	9=100		11 (122.0)			82 (911.1)		95(1.055,5)
Spain			36=100			105 (291.6)		172 (478.0)
Romania								250

Sources: Unesco Statistical Yearbook 1963–1964–1969–1972–1975–1976; Unesco Developments and Trends in the Expansion of Education in Latin America and the Caribbean, Paris, October 1971.

> programmes developed at the University of Chile with the assistance of frequent visitors from the University of California, within a system of 'counterparts' as well as general consultants; dissemination of knowledge through numerous scholarly papers and technical publications based on Co-operative Agreement work (more than 500 papers). The Agreement particularly contributed to the development of the recently created Faculty of Sciences: a 22-inch cyclotron from the University of California Davis was transferred to it to promote Experimental Physics.[9]

This Agreement was not the only one signed by the National University: in a survey of programmes of co-operation between institutions of higher education in the United States and Latin America conducted by the Organization of American States in 1968, the University is a party in twelve agreements. And the other Chilean universities follow the lead of the National University: according to the same survey, the Catholic University of Santiago was a party in three agreements, the Concepcion University in two and the Santa Maria in one.

As a consequence of the operation of these mechanisms, the Chilean universities were becoming in the late 1960s subsidiaries of a selected group of universities of the developed countries, and particularly of the United States (University of California, MIT, University of Minnesota, among others). This state of affairs, among several reasons, has created the need for a thorough reorganization of these institutions.

6 Policy Directives for the Reorganization of Higher Education Institutions in order to Eliminate the Subsidiarization Character of those in the Developing Countries

So far this chapter has argued that the developing countries may not be in a position to take full advantage of their new status in the international scene because their educated elites, the pool from which delegates to the international conferences are recruited, share basically the same ideas about development and its determinants as the delegates of the developed countries. This is accounted for by a complex set of factors that have produced a transnationalized segment in the population of the developing countries and, particularly, by the transformation of their higher education institutions into subsidiaries of the higher education institutions of the developed countries. Under these conditions, it is highly improbable that a NIEO which is just will emerge from the many conferences organized to that effect; rather, chances are that a NIEO will be forged that will put the present privileged position of the developed countries in the international order on new and solid ground, because of the explicit consent of the developing countries.

This anticipation should move the higher education institutions of the developing countries to take urgent remedial action. But since an unjust international order is also an unstable one, higher education institutions of the developed countries should help them in that effort, keeping in mind the long-term interests of their own nation in the international arena.

The remainder of this chapter will be devoted to a discussion of the main policy directives for a reorganization of the higher education institutions of the developing countries in order to make them principal contributors to the theory and praxis of socio-economic development and no longer mere subsidiaries of those of the developed countries. Since such policies would necessarily affect the relation between the latter and the former, the discussion will also include directives for those institutions at the developed-country end of this relation. Before entering into the discussion it is important to bear in mind:

1 that such policies should be understood as part of a more comprehensive set of policies intended to regulate the different mechanisms that are behind the emergence and maintenance of a transnationalized segment of the population in the developing countries and
2 that the following policies are suggested on the basis of the study of the experience of the Chilean higher education institutions, and that they should be carefully revised in light of studies of other developing countries' experiences.

(a) Policy directives for the higher education institutions of the developing countries:
  (i) Increase enrolment in order to enhance access for candidates from outside the transnationalized segment of the society.
  (ii) Decentralize the system of higher education institutions by creating new institutions in the provincial capitals with the same purpose as in (i).
  (iii) Increase the participation of students and staff in the decision process in order to increase the chances of a thorough consideration of the local conditions outside the transnationalized segment of the society when discussing the establishment of new careers or of reforming the curricula of established ones.
  (iv) Increase the participation of the community in the decision process, with the same purpose as in (iii).

These directives only improve the chances of an adequate consideration of the specific problems of a developing country, but do not guarantee that the higher education institution will not become a subsidiary. Another series of policies in the specifically academic field is required to guarantee that the flow of information coming from the developed countries will not drown local creativity.

  (v) Raise the level of exchange of personnel with the higher education institutions of the developed countries. This could be accomplished by inviting faculty from developing countries to teach the local students and by offering their own students as visiting fellows rather than sending undergraduates to be educated abroad. This should be done because it would force the developed country faculty, by the sheer fact of being surrounded by a different social context, to incorporate this social context in his or her teaching and research. The same happens to faculty from a developing country in an institution surrounded by a developed social context, with a cumulative effect in terms of the development of the higher education institution of his country of origin.

(vi) Be selective in the choice of the higher education institutions of the developed countries for purposes of advanced training of their young faculty. Only those institutions that have explicitly introduced in their teaching programmes the study of the special problems of the developing countries should be considered for such purposes.

(vii) Create interdisciplinary centres for the study of their natural and social reality, strongly related to the professional schools. This should inhibit the faculty members' orientation to the problems, methods and techniques of the 'discipline', as defined in the developed countries, and increase the faculty members' awareness of the country's specific reality, as encountered by the practitioners.

(b) Policy directives for the higher education institutions of the developing countries:

(i) Review regularly their teaching programmes with respect to their relevance to the problems of the developing countries, inviting faculty of higher education institutions of these countries as consultants to help them in this complex and highly technical task.

(ii) Increase the participation of students from developing countries in this regular permanent review of teaching programmes, in order to 'fine tune' them to the needs of these countries.

(iii) Create visiting fellowships for faculty of the developing countries in order to strengthen programmes and to provide visiting fellows a chance to use their superior resources.

These policies, as a whole, should help generate much needed knowledge about the development process and the constraints imposed upon it by the present international order. At the same time, they should help create the kind of delegates developing countries need to have in the conferences and other fora where the future international order is being shaped.

7 References

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2 United Nations General Assembly, Sixth special session. Resolution 3202 (S-VI) Programme of action on the Establishment of a New International Economic Order, 16 May 1974, pp. 8 and 9.

3 For a detailed presentation of this idea, see Sunkel, O., 'Transnational capitalism and national disintegration in Latin America', in *Social and Economic Studies*, Vol. 22, No. 1, 1973, pp. 132–75, and, especially Sunkel, O. and Fuenzalida, E. F., 'Transnational capitalism and national development', in Villamil, J. (ed.), *Transnational Capitalism and National Development*, Brighton, Harvester Press, 1979.

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6 This study is part of a global interpretation of Chilean development since 1940 in preparation by the author, Oswaldo Sunkel and Arturo Valenzuela, with the support of SAREC, the Swedish Agency for Research Co-operation with the Developing Countries. Initial support for this project was provided by the Institut für Iberoamerikakunde, Hamburg, with funds provided by the Volkswagen Foundation and the Institute for Development Studies at the University of Sussex. I am indebted to Myriam Waiser for research assistance in this preliminary study. On Chilean universities in general see Hilton, R., *The Scientific Institutions of Latin America*, Stanford, California, California Institute of International Studies, 1970; Schiefelbein, E. and McGinn, J., *Universidad Contemporánea. Un intento de análisis empírico*, Santiago de Chile, C.P.V. ediciones, 1974; Feliz, G. C., *The Regional University Centers: Innovation in Chile*, University of California, Berkeley/Centre for Research and Development in Higher Education, 1972; Labbens, J., 'Las Universidades chilenas: evolución de la matrícula 1957–1967; situación actual', in *Revista del Consejo de Rectores de las Universidades Chilenas*, Vol. III, No. 2, June 1969, pp. 67–95; and Fagen, P. W., *Chilean Universities: Problems of Autonomy and Dependence*, Beverly Hills, California, Sage Publications, 1973.

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VIII The New International Economic Order and the Problems of Education[1]

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Abstract Within the context of the developing countries of the Third World the primary problem of the role of education in bringing about the New International Economic Order (NIEO) lies in the traditional one-way relationship as regards development (i.e. education serving the purposes of development). The NIEO must be based on a new perspective towards education in general, and specifically higher education. Three changes must ensue: (a) mass education must combine theory and practice; (b) equality must be a goal (e.g. urban/rural access, guarantees of employment following training); and (c) the ideology and forms of traditional education, as well as traditional society, must be critically assessed. The aims of education, along with the development of national self-reliance, should avoid the pitfalls of redeployment and beware the tendency toward 'westernization' easily interpreted from the NIEO. The evolution of self-reliance must incorporate the creation of national technological capability coupled with a capacity to inculcate 'developed' technological advances without loss of national identity. By questioning the role of the NIEO in the arena of international economic relations; in regard to the national economic orders of developing countries; in light of international and national social, educational, cultural, political and ideological orders the author offers a structure for evaluating the impact of the NIEO. Further, he questions the role of education in social reproduction; the role of social and economic orders relative to educational, ideological and political orders; and ultimately, the appropriateness of transferring technologies from developed to developing countries rather than creating 'creative capabilities'.

1 Situating the problem

The new concept of a 'New International Economic Order' has become, no doubt as the result of its recognition in a resolution of the United Nations General Assembly in 1974, a frequent subject in the popular press and, at the same time, remains ambiguous. Because it is natural for texts adopted unanimously by all the nations of the world to mean different things to different people; differing interpretations have evolved. The ambiguities are increased still further by the fact that each group and each institution is asked to review its own area of activity and, if need be, to revise this in line with the requirements of this NIEO. When these areas are not concerned with economics in the strict sense of the term, there is a risk that this link-up will be established by some shallow kind of subterfuge. Not that there is no link between the economic and the non-economic in the workings of society quite the contrary, but the way in which this link is interpreted implies an overall theory of society.

For a long time, the predominant view of the relationship between, on the one hand education and on the other hand development (used here and throughout this text to mean that of the Third World) was that of a flow that was practically one way and quantifiable (i.e. to achieve the objectives of development, specific capabilities were required and the function of all levels of the education system was to supply these). Underlying this reasoning is the concept of the 'universality of modernization' and the 'neutral character of technologies'. Viewed from this angle, any new economic order, whether national or international, would only entail a change in the pace and proportions of supposedly known factors (e.g. the stock of education and its distribution, etc.).

To pose the problem of the link between the NIEO and 'education' in terms less restrictive than these and, at the same time, on the basis of one or more coherent interpretations of this NIEO, means finding the answers to a series of preliminary questions which form the subject of this chapter, viz:

1 What does the NIEO programme have to say with regard to *international economic relations*? What are the variants in this programme?
2 What are the relationships between any form of international economic order and internal, national economic orders?
3 What are the relationships between the economic order – internal and international – and the social, educational, cultural, political and ideological order?
4 What is the role of education in the process of social reproduction, both 'in general' and in particular in the reproduction of the present-day order?
5 How do the roles of education, ideology and technology relate to each other within the social and economic order, in general and in today's world?
6 What are the relationships between science, technology and social organization? Should technology be transferred, or is the problem one of creating the conditions for a creative technological capability?

The author realizes that these questions are too important and too vast to do more than put forward a few theories, his own (which are, in fact, not new) in the hope that these form a coherent whole. Other, radically different or less radically different, viewpoints do exist. If the debate is to make any headway, then these too must be made explicit.

The author's answers to these questions explain his 'conclusions', which are not 'hints on how to adjust education to the NIEO', but merely indications of avenues for action and reflexion.

2 New International Economic Order, New World Order, Redeployment

1 The demands put forward by Third World countries concerning the NIEO form a coherent whole; its logic is perfectly intelligible. The ideal means for improving the chances of financing a fresh phase in the industrialization of the Third World would be a substantial and permanent increase in the price of raw materials, allied to a reduction in the level of indebtedness, and more favourable conditions for the transfer of technologies. This industrialization, based on what conventional wisdom claims to be 'comparative advantages' founded on the twin assets of relatively cheap labour and natural resources enabling products to be exported to developed countries, would form part of the prospective development in the patterns of world trade. The opening of markets in the developed countries to exports of manufactured goods from the Third World would, according to this conventional wisdom, be in the interests of society as a whole by creating a closer correspondence between the international division of labour and the ownership of production factors. In addition, these industrial exports would enable the Third World to make up its food deficit through imports rather than aid.[2]

2 If one accepts this argument (i.e. that the NIEO represents a coherent series of limited demands for a new international division of labour) it is none the less true that there are two different and opposing theories as to how this should be brought about.

The Third World countries, insofar as their common platform reflects a certain similarity of views, insist on the need to strengthen the state and consolidate the nation as parallel conditions to the revision of the international division of labour. There is, in fact, diminishing support for the belief that 'development' can be reduced to 'growth' (in terms of GDP) and even less for growth which would be the result of a mere passive adjustment of the South's economy to the demands of the North – an adjustment which would result from simply opening the door to the multinationals. Development, even within the context of the international division of labour, is therefore seen as implying a state policy and one which is not merely restricted to the economic area. This obviously entails a certain degree of autonomy and 'delinking' of the world system. The essential question is – to what degree? Some of the forces in the Third World favour maximum delinkage (i.e. the nationalization of all economic activity, the reduction of external trade to the bare minimum compatible with currency essential imports of technology, ideological isolationism, etc.); others favour minimum delinkage (insisting that the establishment of multinational concerns conform to the national pattern of industrialization and refusing to allow isolated ventures dependent entirely on structures outside the country), while others adopt a middle line (insisting on national control of natural resources, etc.).

The author has expressed his opinion on these questions and attempted to define the point at which the concept of 'self-reliant' development loses all meaning.[3]

The multinational corporations have a different point of view because they are also vectors, and even principal ones, in the international division of labour. But the multinationals see the NIEO solely in terms of its immediate economic dimension (i.e. redeployment – in other words, the transfer of certain production operations to countries in the Third World so as to benefit from cheap labour or abundant natural resources). In order to derive full benefit from this, the multinationals prefer a weak country.

Thus the NIEO and Redeployment (the strategy of the multinationals), find themselves in conflict on this decisive question of the state.

3 The foregoing definition of the NIEO leaves a whole series of fundamental questions unanswered.

In the first place, it is a platform of international policy. In itself, the NIEO does not imply radical change in the international social order of states. This platform and the strengthening of the state which it entails are compatible with 'socialist' social orders (provided there is a minimum of economic exchange with the outside world) and 'bourgeois nationalist', radical or moderate social orders. It does imply, without a doubt, changes in this internal order in cases of extreme external dependence, where the local state is so impoverished as to be able to fulfill only administrative functions, subject entirely to the demands of foreign capital. Such cases do exist but the countries concerned are not the prime movers in the Group of 77.

Consideration of the obvious relationship between the internal order and the international order is made irrelevant by the fact that the proposed international order would tend to emphasize, rather than counteract, the international division of labour.

In the second place, it is a platform of economic policy. The desire to develop the economy, if only in the context of the international division of labour and when allied to a desire to strengthen the state and consolidate the nation, gives the programme a global dimension (i.e. political, ideological and cultural). This is why it can be said that the campaign for a NIEO, provided this is not interpreted in its most restricted sense (i.e. that of redeployment), is a campaign to achieve a new world order, social, cultural and political.

It is at this point that the question of education arises *vis-à-vis* its relationships with the NIEO. Education, in the broadest sense of the term, should be analysed in its relationship to, on the one hand technology (and this in relation to science) and on the other hand to ideology. The way education is perceived in relation to the NIEO is therefore determined by the implicit and explicit relationships which the NIEO has with technology on the one hand (i.e. the structure and type of production, its integration within the international division of labour, etc.) and with ideology on the other (the state and nation within the development context).

3 Education, Ideology and Technology[4]

3.1 *The role of education in social reproduction*

When one uses the term 'social reproduction' (i.e. the reconstitution, from one phase to the next, of the conditions in which a society functions) one is usually referring above all to the reproduction of the productive factors: the reconstitution of the stock of fixed assets and capital required to ensure continuity of production. It is apparent from this that this social reproduction of productive factors is not necessarily a static reproduction merely guaranteeing the reconstitution of the initial conditions for production, but a dynamic reproduction which ensures the expansion of the productive system.

It goes without saying that this reproduction also requires a concomitant, an adequate distribution of manpower between the various sectors of activity and within each of these sectors (in accordance with the specific levels of qualification that result from techniques employed in this social reproduction).

As a result of the division of labour between economists, sociologists, political economists etc., the economists have got into the habit of placing the emphasis on the conditions required for reproducing the productive factors, without concerning themselves with the corresponding distribution of the labour force. It was assumed that this was taken care of automatically by the system itself which, primarily through education, ensures the training of this labour force. What is more, it is also assumed that the mechanisms of the labour market and the variations in payment received for work (in relation to qualifications and their relative scarcity at any given moment) ensure a suitable distribution of the labour force.

But this by no means represents a full picture of the true situation; it masks important factors, especially those of the reproduction of class patterns within society. Technology is not without effect on the organization of work and, in turn, the division of labour is not without effect on the structure of social, political and economic power. In a more general way, education itself is not without effect on these class divisions (e.g. a system of education which theoretically guarantees equal opportunities to children from differing backgrounds and which, by means of examinations and scholarships available to all, ensures maximum possible social mobility). It would, nevertheless, be limited by the division of society into classes, which helps to maintain inequalities in culture and knowledge which are transmitted outside of the formal system of education by the family and the social environment.

We now need to take a much closer look at the part that education, in the broadest sense of the term (i.e. including the systems of adult education), plays in reproducing social conditions.

3.2 *Education in pre-capitalist societies*

What is most apparent to any observer of pre-capitalist societies is that education is formal. In civilizations with written traditions, the learning of the language is restricted to a small minority and education is primarily concerned with language, grammar, religion and moral instruction; it is centred around a general cultural training of a religious ideological kind. A second observation would be that the training of producers as such (i.e. as skilled production workers), is not provided by any formal system of public education; it is acquired on the job – in agriculture by familial legacy of knowledge and in the handicrafts sector by more or less complex and formalized systems of apprenticeship. In this kind of society, scientific training in the sense that we in our modern societies understand it is not, generally speaking, distinct from philosophic and religious training; and scientific research is carried out by a very small number of individuals who are self-trained and who have not gone through any formal system of apprenticeship.

The first explanation of these facts that comes to mind corresponds to the line of argument employed in the philosophy of Enlightenment. In this linear interpretation of history, which sees scientific and technical progress as a continuous process, the traditional forms of education merely reflect the scientific and technical backwardness of these societies. The level of scientific and technical knowledge needed to ensure the various types of production does not require a school, much less a specialized school. The philosophy of Enlightenment also explains the religious character of the education provided, primarily for the ruling class, in terms that are somewhat scornful of these 'alienated' forms of education – our modern education being more advanced because it is less religious, but more scientific and more open to a critical approach.

However, this explanation overlooks some vital aspects of the problem. Even if it contains some truth, it greatly underestimates the importance of technical and scientific knowledge in pre-capitalist societies. Above all, it obscures the relationship that exists between the methods of traditional education and the nature of pre-capitalist production processes including the demands of this structure in terms of ideology; it throws no light on the linkage which characterizes the way production is organized and the ideology of these societies.

In fact, a characteristic feature of all these traditional societies, despite their wide variety, is the clarity of their economic system. The processes of production and distribution are there for all to see, because the economy functions in a direct manner and not through an intermediary market. The appropriation of the surplus by the ruling classes is therefore perfectly visible.

In such societies, economic exploitation can only persist and be maintained if society as a whole (i.e. the ruling classes and the exploited classes) share an ideological philosophy that justifies their unequal status in the eyes of both. This ideological justification has assumed a variety of forms depending on the nature of these traditional systems, but it appears primarily as an ideology justifying inequality in relation to social and political functions. It is thus understandable that ideology plays a dominant role in the reproduction of society. It is also understandable that this ideology should be of a religious nature – in other words, that its assertions and its axioms are not open to question, and that the principles of social organization should be deduced from these axioms by a process of formal reasoning, by analogy. This philosophic education may take a severe and strictly religious form (e.g. Christianity, Islamism, Hinduism, Buddhism) or it may well find expression as a secular ideology – as in the case of China, where their idealist philosophy was similar to religious ideology. This ideology constitutes the basic subject-matter of education, particularly the education of the ruling classes who must alienate themselves in it to the same extent as the exploited classes (i.e. they must believe in it in order to apply it effectively) – whence the elitist character of education is based on religion.

As far as the training of producers is concerned, which is acquired outside any formal system of education or schools, this is not inferior to the training which the majority of persons in our present-day society get from a school. If it proved possible to get this training through practical experience on the job for many thousands of years, this was not because the techniques used were simple. This does not seem to me to have been the main reason. In fact, contrary to widespread popular belief, the farmer, even the farmer in pre-capitalist societies, is a worker who is infinitely more skilled than the majority of workers in modern industry. The nature of his work requires genuine qualities of scientific observation, reasoned thinking, empiricism and a capacity to assess probabilities; qualities which the worker on a production line, endlessly repeating the same mechanical gesture, does not need. Similarly, the craftsman in a pre-capitalist society is a highly skilled worker. This does not at all mean that productivity in pre-capitalist societies was higher than it is in capitalist societies – it is quite obvious that overall productivity in our modern society is infinitely greater. But this higher productivity has been obtained by intensifying the division of labour and by concentrating at one end of the scale the highly skilled task of inventing and manufacturing machinery while, at the other end of the scale, the use of this machinery is a low-skill task.

So it is not primarily because producers in traditional societies acquire their training on-the-job rather than in schools that they are less skilled than those in a capitalist society; it is because the division of labour in pre-capitalist societies is less advanced than it is in a capitalist society. Although a division of labour exists between occupations (farmers, metalworkers, woodworkers, potters, weavers, builders, etc.) there is no division of labour within these occupations. It is for this reason that the link between theory and practice, between the teaching of production techniques and their application, is seen as being necessary, simple and evident. It is not questioned by any ideology of education and knowledge intended to precede the practical application stage. Insofar as the level of development of the productive factors is less advanced in pre-capitalist societies than it is in present-day capitalist society, the technical knowledge applied by producers is empirical knowledge. By implication this presupposes some form of scientific knowledge, but this is not arrived at in a systematic manner. This is why we notice here a relationship between religion or, in more general terms, between all of the influential ideas formulated within a religious framework, and the productive crafts. Granted the production techniques are deduced from empirical observation, from experience rather than from scientific principles observed, analysed, known or acquired in advance: these productive crafts are tied to religion through myths which replace scientific knowledge or serve as a means of partially mobilizing scientific knowledge as presented in a more complex framework.

These are the reasons which ensure the maintenance of the division of society into ruling classes who are the only ones to receive a thorough ideological education, and producers who get their training on the job through the exercise of a trade.

3.3 *Education, ideology and technology in the capitalist system*

In contrast to this, in capitalist society, for the first time, the economic issue is clouded by the spread of the system of market exchange. The division of labour is becoming so complicated that producers no longer have any direct links with one another. Distribution no longer appears to have a direct relationship with production. It is, in fact, because there is this vagueness that social laws, in our sense of the term, are beginning to make their appearance. The term 'law', as applied to natural sciences, implies the existence of objective forces unconnected with the observer and acting independently of him. Before the development of the capitalist system it would have been inconceivable to imagine social laws different from moral laws. The development of a new science of society, divorced from morality and religion, is only possible now because the social laws appear as forces alien to society.

The main aspect of this social science is the economic aspect. These social laws, which impose themselves as independent and alien forces on society, are in fact essentially economic laws (i.e. the laws of market exchange). The price of labour, the price and purpose of products appear to result from the operation of the market forces of supply and demand.

Thus this capitalist society will have an economic rather than a religious form of ideology. This will be accompanied by a demystification of politics, which will be divorced from morality and religion and progressively resemble a branch of social science. This phenomenon needs to be borne in mind if we are to understand the nature of the changes which will occur in the area of education.

At the same time, and this is the second fundamental aspect, we shall be seeing a phenomenal development of the productive factors, resulting from the division of labour within occupational categories and coupled with an increasingly extensive use of capital equipment.

If we take a closer look at the forms and methods of education and, in more general terms, at the process of training in nineteenth-century capitalist society, we shall see that these are as follows: first, for an elite, we find a form of education which has remained very close to the traditional system (i.e. an education based on the humanities, no doubt less religious in character, in which 'scientific knowledge' is slowly finding a place), but which none the less retains its fundamental philosophic, linguistic and literary character. The gradual expansion of the teaching of mathematics as an adjunct to formal logic provides training in the art of reasoning.

Secondly, the training of skilled workers and also of technicians at higher levels, and of engineers, was for a long time very limited and, to a varying extent, regarded as somewhat inferior to the humanist education of the elite, of the new bourgeoisie, including its political elements and those responsible for the ruling ideological and intellectual functions. A great part of this training, and in particular that of skilled workers, is still acquired on the job. It provides a means of social mobility enabling them to move up the scale, particularly to positions as engineers.

The third aspect is the gradual spread of basic education. In the first place, this is a general education to form citizens and, secondly, one which aims to instil elementary scientific and technical knowledge which will later enable the student to perform as a skilled worker.

These three aspects can only be understood if one bears in mind the specific features of capitalism (i.e. the vagueness of social relationships, the emergence of objective social laws – particularly economic – the dominance of economics in the ideology, and the development of productive factors in conjunction with the division of labour within an occupational category) in other words, the gradual separation of the tasks of policy-making and direction from the operative tasks, which are becoming less valued.

The training that is given to individuals in the form of general primary education is basically an education for citizenship. This civic training has become progressively divorced from religion (even if it retains, in certain instances, some aspects of a religious nature, origin or type) because politics have been demystified. However, the emergence of social and economic laws, operating on society like natural laws extraneous to society itself, transfers the religious aspect from politics to economics.

The education of the elite therefore primarily involves acquiring a mixture of opinions, ideas and understandings of an ideological kind concerning the social order and the objective character of the society's laws, either coloured to some extent by religion or detached from it. At the same time, in the structure of the labour force, skilled work is separated from the 'non-skilled' work assigned to the vast majority of producers. It is this progressive separation which gives rise not only to the educational problems of the modern world but also, in a wider context, to the problems of civilization and social perspective, and the objectives of economic development. This is the cause of a series of contradictions which characterize the disorder of the modern world.

3.4 *The crisis of the modern world*

The first contradiction is the progressive debasement of work in the industrial world, by which is meant the progressive downgrading of an increasing number of workers. This is a vital aspect which reflects the fundamental malaise of our society, but one which ideological preconceptions would keep totally hidden.

This first contradiction gives rise to a second (i.e. at a time when secondary education is tending to become more widespread – in response to wealth and democratic pressures – the population of such countries is acquiring a more extensive formal education, but the majority of those educated are finding that they have less and less need of it for their work). Education is becoming dysfunctional, a sort of useless luxury for an ever-increasing majority of the population.

This second contradiction arises from the specialization of skilled labour. Progressively during the course of the nineteenth century, the adoption of more modern and more efficient techniques affecting global labour productivity has brought about a more direct relationship between science the source of knowledge, and technology, the manner in which this knowledge is applied in a particular area of production.

The third contradiction concerns what might be called the crisis in the humanities. This crisis is closely linked to the changes which have taken place in the ownership and control of capital, characterized by the gradual disappearance of the individual or family entrepreneurs who formed the bourgeoisie of the nineteenth century. They have been replaced by a class that more or less collectively controls capital on a much more centralized basis. This progressive concentration of capital has resulted in the curtailment of the private, family-owned type of enterprise and the invention of social forms of ownership (e.g. the public company or corporation which controls the capital). The middle classes of the nineteenth century are gradually being replaced by what Galbraith, among others, has called the 'technostructures' – a term moreover that is highly ambiguous.

This change highlights another aspect of social reproduction (i.e. the reproduction of the bourgeoisie itself as a social group, made up of individuals and families). In the nineteenth century, reproduction of the bourgeoisie occurred very simply within the bourgeois circle through the arrangement of marriages and the family inheritance. With the centralization of capital and the transfer of control from these families to public companies, the family inheritance disappeared. Since, on the other hand, the working masses are de-skilled by their work (although, as a result of democratization they have access not only to general primary education but also to secondary education with even, in some cases, the possibility of admission to a university), the education of the 'elite' is increasingly the result of an internal choice of a socio-political kind. This choice is disguised in the form of an individual assessment of the 'qualities' or on-the-job experience – or what is claimed as such– but it is in fact contrary to the democratic requirements of social mobility. This does not prevent it from provoking a crisis in the system of education in the humanities, which is doomed to disappear because the bourgeoisie is no longer reproducing itself within the strict family tradition and because of the changes in the content of the training and education of the ruling class.

The new content, which constitutes the basis of the ruling class's training and education, is science and technology considered as ideology. The aim of this education is no longer solely that of producing scientists or technicians – its main objective is to produce a belief that science and technology constitute autonomous forces outside society. Against this background, a crisis breaks out in the university system of teaching social, political and economic science, while a philosophy, based on the axiom that technology should take the place of ideology, is gaining ground.

The first observation with regard to developing countries is that their traditional systems have been progressively destroyed as a result of integration into the world capitalist system. Handicrafts have practically disappeared in the face of competition from manufactured products and the system of agricultural production has been down-graded as a result of conditions imposed upon it from the outside to adapt it to the needs of the world market. Extreme examples of this can be seen in African societies where the production of foodcrops, for which a wealth of detailed technical know-how had been accumulated, has been gradually replaced by the production for export markets of crops. These crops are developed at research and extension service centres independent of the producers themselves; findings are subsequently 'transferred' (in fact, imposed upon) farmers through a system of extension workers, co-operatives, 'development corporations' etc., which dispossess the farmer of his ancestral skills. Parallel to this destruction of the traditional system of on-the-job training, as a result of the penetration of the capitalist system's ideology into underdeveloped societies, we are witnessing the disintegration and gradual disappearance of the elitist systems of education, in particular systems based on traditional philosophy and religion. This is the case, for example, in all of the Moslem countries, where teaching is based on the Koran.

It can also be observed that nothing is being set up in the place of this destruction, whereas in the case of the capitalist system – as traditional education was progressively destroyed, it was replaced by a new form of education as discussed above.

As a result, in the developing countries, the contradictions within the system manifest themselves in a violent and almost exaggerated manner. We are also witnessing the specialization of skilled labour, since the models of industrialization are borrowed from developed countries; but this specialization is such that the capacity to master the process of skilled labour is practically non-existent. This handicap is overcome by the massive borrowing of technology. Moreover, we are seeing a transfer of models of nineteenth-century elitist education which is perfectly absurd, since it is not even part of the local tradition as it was in Europe.

One may well wonder what purpose is served by mass literacy programmes or education in this kind of society. One needs to have the courage to follow through with this line of argument and conclude that literacy and mass education in such societies are dysfunctional; that they are out of place, that thev do not correspond to the needs in terms of social reproduction of the dominated peripheral system and that, as a result, they can only succeed if they are accompanied by a rehabilitation of labour.

What is meant by 'rehabilitation of labour'? In this as in other areas, it is not possible for developing countries to follow the same path as the developed countries. From the outset, they must go beyond the capitalist system and develop technologies which will enable them not only to solve their own specific economic problem (i.e. that of underdevelopment, but also to open new avenues toward a world civilization). This is an extremely complex and difficult problem; a solution will undoubtedly require much time. It is not impossible for today's developed world to play a part in creating this new world civilization when re-examination of the patterns of social organization and work organization continue to result in this massive downgrading of labour.

On the basis of this argument, one can state three conditions that are essential if education is to provide an effective answer to the problems of development. The first condition is that one must make sure that this mass education, at all levels, closely combines theory and practice.

The second essential condition is equality (i.e. education must concern itself with all of the population, with every rural and urban area, with those who are lucky enough to have a job and with those who are still unemployed); all must be guaranteed a job once they have been taught to read and write. At the same time, an effort must be made to ensure that those who have acquired a more advanced education – often from a foreign source and non-functional for the society – do not take undue advantage of their 'stock of good fortune', which is considerably greater than that of others.

Finally, the third condition is a frank and critical assessment of the ideology and forms of traditional education. A similar critical appraisal needs to be made of traditional society. However, this critical appraisal cannot be made by means of a comparison with the culture, ideology or forms of education borrowed from contemporary capitalist society because these have an alien character for local society and have no root in national cultures. One needs to go beyond local culture and ideology yet use these as a base. Ambiguities in this area are often related to the aspect of nationalism and authenticity: one can only progress further by ensuring in some way, and simultaneously, both continuity and a break. One must not eliminate traditional society, its systems of education and its ideology, without replacing these by another social structure, other systems of education, and another ideology which genuinely respond to the problems of the masses who are victims of peripheral and dependent capitalist 'development'.

4 Some Suggestions with Regard to the NIEO and Education

Bearing in mind what has been said above, we could perhaps now go on to consider in a more systematic manner the relationship between the proposed social and economic changes and the problems of education.

The strategy of redeployment is the one that entails the fewest changes as far as education is concerned. From this perspective, which reduces education to a means for adjusting pre-defined occupations to the needs of the market stated in quantitative terms (i.e. the technologies and job functions are specified), the task of the primary school is to train the non-skilled, basic labour force, the secondary level (where technical training is emphasized), the junior operative staff (foremen, accountants, etc.); and higher education, the administrative, professional (doctors, lawyers, etc.), and technical staff (engineers etc.). At no level is there any question of teaching anything but the known: from elementary arithmetic at the primary level to book-keeping in the secondary, and the more sophisticated project analysis models (of the World Bank kind), everything is known; it represents no more than a 'transfer of technology'. In these conditions, the real major concern is to ensure competitive conditions within the labour market, by keeping supply constantly ahead of demand, thus guaranteeing lower scales of pay than in the western world. The 'humanist culture' in this context is only a form of window-dressing. As for the social sciences, they are both unnecessary and dangerous: social naivete is what is required here so that the ideology of 'westernization' and social mobility via education, supported by organized competition in the labour market, can operate without snags. But there are snags, such as religious revolts; these are regarded as 'vestiges of the past'. Neither the question of the state nor that of the nation are the concern of education.

The strategy of the NIEO is certainly less barren. Even if it does not necessarily imply radical changes in the internal social order, the emphasis on constructing the nation and the state means that the school cannot be reduced to the role of a purveyor of manpower. The role of general primary education is not solely that of turning out the common labourer, but also, and above all, the citizen. Similarly, the Jules Ferry school in France was not merely the outcome of industrialization but the expression of a desire to unite the nation, to eliminate regional languages and dialects, to unify beliefs (the Secular Republic etc.), and to form the Army (of 1914). In the Third World universal education aims to achieve the same objectives to eradicate 'tribalisms'. The university has the same functions as in the redeployment strategy (i.e. to train administrators and technicians in the technologies which are to be imported). As for secondary education, it must remain what it is (i.e. the selection stage for higher education and that of recycling the drop-outs by means of concentrated courses for middle-grade technicians). At the same time, secondary and higher education have the task of forming the bourgeoisie, as in nineteenth-century Europe. This system of course is riddled with contradictions, which are the product of this dream of replanting the institutions of a national capitalist society in the soil of a dependent peripheral capitalism – the NIEO does not mean self-reliant development. At best, even in its most favourable construction, it represents no more than a phase in the struggle to simultaneously transform national societies and the world order. The demands for state and national construction are likely to be reduced to the status of nationalist and, in some extreme cases, neurotic utterances – always hollow because, with all of this, the real objective remains 'westernization'.

The trouble starts when the NIEO is viewed as a contradictory stage in the process of national and social liberation with self-reliant development as its basis. Then all of the problems mentioned in Section 3 come to the fore. It then becomes a question of creating, at one and the same time, the capability for technological invention to operate within a context of social relationships which are being progressively modified, and the capacity to build a nation (in many cases from scratch) by creating conditions which will enable society, on the basis of its history, to unite and accept input from the West without losing its identity. We have a few suggestions with regard to these problems, based on certain experiments concerning the combining of theory and practice (the working school) and based on the 'silent moral revolution' in the West (changes in the pupil-teacher relationship, growing awareness of the out-of-school, informal type of education etc.). But what we certainly do not have are any ready-made solutions, or even any major conclusions. The questions touched upon in Section 2 arise at the same time (e.g. the need for 'compromise' – to adjust the actual stages) since it is impossible for the self-reliant basis to appear ready-made as if by magic and because Third World countries are obliged to import technologies etc.

Here there is unlimited scope for discussion and thought at a variety of levels, both theoretical and pragmatical.

5 References

1 This paper was translated by the IIEP.
2 For a more detailed account of our analysis of the content of the NIEO, see Amin, S., 'Développement autocentré, autonomie collective et ordre international économique nouveau', in *L'Occident en Désarroi*, Dunod, 1978.
3 Ibid.
4 The ideas set forth in Section 3 have been dealt with at greater length in the Unesco Review, *Perspectives*, I (No. 1), 1975

IX Some Lines of Action for Universities in Least Developed Countries in the Light of the New International Order

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Abstract Because of the dependance upon the developed countries of the world, a less developed country (LDC) turns to its institutions of higher education to perpetuate and conserve the status quo. This can and does become dysfunctional when student groups successfully advocate for reduction of national economic dependance. The role of universities becomes ambivalent – do they foster maintenance of, or advocate change in, the present social structure? From a Latin American perspective the interaction of the universities with social contradictions becomes the 'locus' for university reform in LDCs. By focusing on the re-orientation of professional studies, the socialization of students, the diffusion of culture, and the re-orientation of scientific research and technological development universities are capable of aiding their LDC in overcoming dependance and in attaining self-reliance. Through interdependence with the other LDCs a nation approaches self-reliance. Universities can assume one, or any combination, of several roles: the purely academic approach; co-operation with development through technical collaboration; the building of critical consciousness within the academic community and in society at large; direct intervention through positive social interaction; and the ultimate option – dissolution of the university.

1 Introduction

The purpose of this chapter is to suggest some lines of action which universities in less developed countries (LDC) may pursue to meet the demands of a NIEO.

Section 2 proposes a theoretical framework aimed at providing a better understanding of the nature of underdevelopment and of the role of universities in LDC. Further, it explores the functions of universities in such countries and tries to establish the possibility and limits of meaningful actions to overcome present trends.

Having established this theoretical possibility, Section 3 then explores the major fields in which Universities could make significant contributions to a NIEO. Concrete innovations in these fields are proposed.

Section 4 examines the political constraints of such innovations in LDC, in order to draw some conclusions about the feasibility of the proposed reforms.

When speaking of LDC, special reference is made to the Latin-American situation.

2 Higher Education and International Dependance of LDC

In this section a theoretical framework will be outlined in order to understand, in general terms, the role of universities in LDC for the purpose of overcoming their present dependance (see Section 2.1). The basic functions of universities are then reviewed showing their ambivalence regarding diminishing dependance (Section 2.2). Finally the importance of the contradictions of the social system for university reform is pointed out (Section 2.3).

2.1 *Theoretical framework: underdevelopment as dependance*

The fundamental objectives of the NIEO is 'to obtain a life of dignity and welfare for all citizens of the world'.[1] Its basic value-orientations are: equity, freedom, democracy and participation, solidarity, acknowledgement of cultural diversity and ecological integrity.[2] The implementation of such an order implies new development strategies which should encompass satisfaction of basic human needs, eradication of poverty, increase of self-reliance, participation and rational use of natural resources.

The proponents of the NIEO have repeatedly stressed the need to transform the world's political structures, so that the present situation of *dependance* of LDC upon the highly industrialized ones gradually evolves towards a situation of greater *interdependance.*

Throughout the last ten years Latin-American sociologists have developed the so-called 'theory of dependance' in order to explain the nature of underdevelopment. This theory might contribute to a better understanding of the ways in which education relates to the development process.[3]

According to this approach underdevelopment should be considered as an effect both of external and internal factors. Latin-American societies, particularly, are part of the historical process of capitalist expansion. In this process Latin America has been gradually incorporated as a 'peripheral zone' which must respond to specific demands of economic development in the global capitalist system. This 'zone' does not reproduce necessarily the socio-economic phenomena of the 'central' countries, but rather develops autochthonous socio-economic conditions within a general framework of external dependance. Two influences are simultaneously acting upon the characteristics of such societies: on the one hand, the development trends of the international capitalist system, on the other, the internal conditions of the dependent country.

The various social processes that occur in a dependent society (for instance, stratification, capital accumulation or organization of power) are not to be explained by a direct and causal linkage to the central parts of the system; these processes follow an evolution of their own but bear always the stamp of dependance. Underdevelopment, therefore, is not a stage previous to development (as was assumed in the 1950s and early 1960s), but rather a necessary condition for the overall evolution of the capitalist system. Dependance of certain countries is necessary for the development of others.

A dependent country will therefore adopt the traits of dependance both in its infrastructure and in its superstructure (in Marxist terms). Two basic superstructural components are generally pointed out: ideology and institutionalization. Both are related to education.

But there is neither a causal nor a mechanical determination of these superstructural elements by the economic infrastructure. The superstructure enjoys a certain degree of autonomy. Education, as part of the superstructure, has the possibility of acting upon the infrastructure to a certain extent and under certain conditions.

Universities are the most qualified and specialized part of the educational system. They perform both 'ideological' and 'institutional' functions in the superstructure. They reinforce the dominant ideology in many ways, but they do this with a certain degree of autonomy; they also contribute to 'institutionalize' society, especially by selecting élites and distributing social opportunities, however, this is achieved with a certain elasticity in regard to the prevailing class stratification.

In summary we must say that universities in LDC are part of a dependance situation. As related to the superstructure they contribute to the function of reproducing the prevailing mode of production; however their performance allows for a margin of autonomy. This autonomy opens the possibility of planning university reforms which may have an effect on the structural situation of dependance. The next section will analyse the ways in which this can be achieved.

2.2 *Ambivalent performance of universities in dependent countries*

The previous theoretical framework provides a basis to show that universities may contribute to a NIEO by decreasing dependance and increasing interdependance within limited margins of action although, at this point, it is not yet clear what this implies nor how it can be accomplished. Universities can reinforce through their performance those social processes which tend to decrease dependance and oppose those which tend to reinforce it. The application of this general statement requires a further analysis of the concrete social processes upon which universities may act and of the ways in which they may influence them.

The relative autonomy of the superstructure explains why universities can behave ambivalently *vis-à-vis* the conservation or change of the dependance situation. This section aims at identifying the fields of university action in which this happens.

2.2.1 Supply of social benefits and services

Institutions of higher education provide different services to society: training of human resources, research, diffusion of culture, etc. All these services, or most of them, are part of the aggregate supply of goods and services produced by the economy and bear necessarily the characteristics of a dependent economy: they reinforce both the internal conditions of the social and political structure and the external linkages of international domination. Professional studies are offered according to employment opportunities, research and technologies follow roughly the rules of the existing market, prevailing values are brought into the university by professors and students and reinforced through the pressures of 'social success', etc.

This notwithstanding, the services provided by universities in LDC can, to a certain extent, become dysfunctional to society and act against the conservation of the status quo. Pressure from student groups or dissident ideologies may force the administration to accept research projects which contribute to reducing economic dependance or to open professional careers which respond to objective social needs although there is no market for them, etc. Thus the performance of universities becomes ambivalent for maintaining or changing the present social structure.

This ambivalence could be easily analysed in each of the services provided by any concrete institution. One approach to this analysis would be the identification of the pressures exerted upon decision-makers when determining institutional policies; another approach would be a study of the value-orientations underlying major policy decisions. Such analyses are required in any concrete effort of institutional planning aimed at reorienting universities of LDC according to a desired pattern of social change. Ambivalences in the services provided should be clearly identified as a departing point for policy reforms.

2.2.2 Selection of élites

As does the rest of the education system, universities perform a function of social selection: they select and train élites for specific social roles. This selection is carried out in accordance with certain criteria, often implicit, which provide ideological justification to the prevailing power structure and class stratification.

It is possible to establish a typology of educational systems based on the criteria which guide their social selection.[4] The dominant ideology provides these criteria in order to justify the existing patterns of distribution of power and social benefits.

The criteria followed by the educational system for social selection are determinants for defining access to the different levels of education and for academic success; in so doing they also determine access to the different employment hierarchies, income levels and degrees of participation in social power. In this manner the institutional operation of the university influences social mobility and contributes to the degree of 'openness' of society. This type of structural relations between universities and social processes has been emphasized by those who consider education predominantly as a mechanism of social 'reproduction'.

Institutions of higher education are, however, ambivalent in respect to social selectivity. Within certain limits they can counteract the tendency to reproduce social stratification and modify the patterns through which élites are chosen. They can do this through their admission policies, their financial styles, the criteria for recruitment of faculty and, more generally, through curriculum reforms in the professional studies and the choice of research projects. The mere mention of these policy issues suggests the type of studies necessary if universities in LDC are to modify their contribution to social selectivity in accordance with more egalitarian patterns.

2.2.3 Elaboration of cultural models

Universities generate cultural models (i.e. they produce and revise norms, values and ideologies), whether implicitly or explicitly. These models may reinforce the one imposed by the dominant culture or they may rather challenge its validity and legitimacy.[5]

The ways in which Latin-American universities are contributing to the development of new interpretations of social reality may illustrate this ambivalence. While some institutions diffuse and reinforce the dominant cultural model favourable to the situation of dependance, some others question the implications of capitalist development from philosophical, ethical or economic points of view, reveal ideological complicities of social institutions and reinterpret the functions of the various social classes.

2.2.4 Social legitimation of values

Universities contribute to the legitimation of values. Through their educational procedures, they legitimate who shall teach, what shall be taught and how, and for what purposes. Through their institutional policies they legitimate values which underlie the functioning of society.

Usually universities tend to reinforce prevailing values represented by the ruling élite; from these facts Bourdiey and Passeron have drawn their theory of 'symbolic violence'.

But this capacity of universities is also ambivalent in its actual practice. It does generally contribute to strengthening the present social order, but it may also favour social change. By fostering among their students and in society at large a critical consciousness regarding prevalent social values, universities in LDC may contribute to weaken dominant values and support emergent cultures of dissent.

2.3 *Social contradictions as ground for university reform*

The study of the above mentioned ambivalences of universities, when carried out in a concrete setting, leads to detecting the 'contradictions' of the social system (i.e. situations in which an intended objective or a social process necessarily produces its opposite). Such contradictions are of great importance because they provide the ground or the 'map' for meaningful university reforms, inasmuch as they reveal the 'zones of dysfunctionality' tolerated by the social system. By operating in such 'zones' universities may pursue explicit objectives which are accepted by the established order, and at the same time fulfil implicit objectives contrary to the maintenance of the social system.

In following this strategy for their reform universities should:

(a) identify the contradictions that arise from their interaction with the social processes;
(b) assess the relevance of those contradictions for promoting social change;
(c) foresee their probable evolution; and
(d) determine the necessary limits or constraints of possible dysfunctional actions.

In this way, the interaction of the university with the contradictions of the system provides the 'locus' of university reform in LDC. Universities are not the major agents of social changes; their actions are important only inasmuch as they strengthen social processes that act against the stability of the social system.

The contribution of universities in LDC to diminish external dependance and its internal effects should be based on this strategy. Their limited actions should aim at modifying the structure of dependance by depending on social processes which produce effects contrary to the preservation of the status quo and by making use of the inevitable ambivalences in their performance.

3 Some Lines of Action

The foregoing section has established a theoretical possibility: universities may contribute to overcome dependance if they articulate their actions to the contradictions of society. The present section aims at explaining how this theoretical possibility can materialize. Some lines for concrete action will be dealt with here: the re-orientation of professional studies (Section 3.1); the socialization of students (Section 3.2); the diffusion of culture (Section 3.3); and the re-orientation of scientific research and technological development (Section 3.4).

3.1 *Re-orientation of professional studies*

Most of the careers offered by universities in LDC contribute to strengthen the situation of dependance: they are not designed to meet the basic needs of the underprivileged but rather respond to the market 'needs' of the modern part of the economy. The distribution of professional services follows the pattern established by the salary structure and reinforces social inequalities; the contents and teaching methods of professional studies reinforce the dependance situation to the extent that they comply acritically with the production and technological processes of a dependent economy.

This is a structural situation, produced by the configuration of economic and political factors, and expressed in the working aspirations of students as well as in the value-orientations of professional associations and the implicit appraisals of specializations and disciplines. The universities are forced into economic functionalism: they critically study and interpret social realities, disseminate ideologies and endeavour to form a critical consciousness, but none of these activities can counteract the fact that it is to a great extent their own graduates who – perhaps rebels in their student days – now occupy positions that are essential to the maintenance of the social and political structure.

The dilemma of training professionals who reinforce 'the system' or of training them in order that they should change it is one of the most acute contradictions now faced by universities in LDC. Rooted in society, they in fact resolve the dilemma in favour of economic functionalism and continue to offer fields of study suited to the existing labour market. Universities must face up to this contradiction in a responsible way. Extreme positions – the functionalist adaptation to the labour market 'because it is the only one that exists' or expecting miracles from a revolutionary change – are of little use. Few are those who, apart from simply adopting an ideological position, analyse the real causes of the problem; even fewer are those who attempt practical solutions.

It is possible to modify, within certain limits, the design of many careers and thus affect the models of professional practice in a dependent society. It is not an easy task; it requires a detailed study of each profession and of its articulation to the global social structure. The following guiding principles may be helpful:[6]

1 When planning their fields of study, universities should bear in mind that professions are social structures. The curriculum should include elements to ensure that future members of the profession understand the role played by their profession in society. This implies knowing and explaining, among other things, how it is structured and how and for what reasons the employment market functions in that professional field, what technologies are employed, how the work is organized and divided up, what abilities are required of its members, on what financial structures and institutions the profession depends, how it is linked to other professions, professional associations, pressures groups, etc.

This knowledge will help to ensure that the student understands the profession better and that the education process makes a more effective contribution to national development. It is no obstacle to the social commitment of the university that its study programs in technical subjects correspond to the needs of production, provided that the profession is perceived in its relationship to the global social process.

2 Based on the above, universities should encourage in their students a critical sense with respect not only to society in general, but also to the relationship that the profession maintains with the social structure of the country. Critical awareness, encouraged in the free discussion of ideologies, should refer specifically to the profession to be exercised.

3 The training of responsible professionals should include the awareness of possible reforms which, within the bounds of the system, can strengthen desirable processes of technological, economic and social change. In each branch of production and in each professional field it is indispensable to provide training for the critical selection of the technologies used; the students should develop a 'capacity for technological selection', so that they leave the university with technical knowledge of what they are dealing with and with the ability to introduce innovations within the bounds of what is feasible.

4 In particular, the curriculum should include the study of ways, in each field of activity, to generate employment and open up new sources of work. The critical sense should not be limited to the interpretation of great social facts; it should result in a specific economic responsibility. The professionals of a dependent country should know a certain amount of practical economics: be technically trained to promote, in their specific field of activity, economic and social innovations designed to overcome injustices, many of which are due to the present organization of professional activities rather than to the profession itself.

5 In addition, universities should move ahead to create new fields of study designed to meet objective social needs, even though a 'market' for them does not yet exist. This is how some professions that are now important for social change first began. The critical sense of the university would be evident especially in the identification and forecasting of these needs.

6 In some fields of study universities should also allow alternative options for student volunteers who would like to try out a different concept of their profession and its exercise, and direct their services to fulfilling the basic needs of the marginal sectors of the population. In this case professors and students would have to develop a greater commitment to social innovations with a wider scope, based on a different model of professional practice. At the basis of these projects is an idea of the social commitment of the university, according to which it should seek ways of transferring its power – knowledge, technology, social prestige and resources – to the exploited masses.

3.2 *Socialization of students*

The need for students of LDC to acquire a commitment to their society has been poignantly stressed by Julius Nyerere, President of Tanzania:

> The real problem in our societies is a different one. For Universities all over the world have this task of trying to educate and expand the minds of their students. Universities in developing countries have also another, and in some ways a more difficult problem. It is the problem of commitment. . . . How can the reality of this responsibility be maintained all the time for

> students who live here? How can we ensure that they remain or become constructively concerned about the task of transforming our national poverty, so that they regard the conditions here as an interim in their lives and not as something to which they are entitled? What all this really amounts to is not a question about buildings; these are the physical surroundings designed to assist efficiency. The real problem is that of promoting, strengthening and channelling social attitudes which are conducive to the progress of our society.
>
> For . . . we can only justify expenditure on a University – of any type – if it promotes real development of our people. And the buildings become relevant only because they could introduce one further factor dividing University students from the masses who sent them here. But they do not necessarily have this effect. The factors which really determine whether University students shall remain an integral part of a classless society or become members of an alien élite, are much more subtle – and much more difficult to deal with.[7]

Universities in LDC have not given enough consideration to the effective domain in their training programmes. It is true that the problem of internalizing values congruent with the needs of development is not entirely in the hands of educational institutions; multiple influences upon students mould their values, norms and aspirations. However, there are many ways in which universities in LDC can contribute to an appropriate socialization of their students.

A recent study in a developing country has shown the effect of an 'efficiency-oriented' curriculum (in the case of chemical engineers) on the social attitudes of students.[8] Professional training in chemical engineering at the National University of Mexico has been satisfactorily oriented towards technical and economic efficiency. But it has also resulted in an incorrect socialization of students. Professionals trained in this institution show little concern for the social implications of the technological processes in which they are engaged. The improvement of their professional capacity has contributed to the modernization of the economy in the last thirty years, but not to the advancement of justice and social equity.

Values are as important as contents in professional education in developing countries. If the NIEO is to be based on different social values – especially solidarity – its implementation requires promoting such values among individuals and groups, in accordance with their social responsibilities. This means that the structuring of a NIEO is not only an economic task, but also a problem of moral education.

Countries that have established a new revolutionary social order, such as China, Cuba and others, have conditioned access of students to higher education to a previous experience in community service; after a period of two or three years the communities determine which candidates deserve the privilege of higher education, on the basis of their commitment. On the contrary, countries (whether developed or not) which are satisfied with their social organization ignore these aspects of education: they do not take into account value-orientations when determining their admission policies to higher education. This does not mean that the universities of these countries do not select their students according to certain values; the selection is carried out in terms of social class and these educational programmes provide rewards to certain attitudes and behaviours.

The socialization of students for a world of solidarity and service should run parallel to the development of a 'critical consciousness' and to the 'capacity for technological choice' explained above (see Section 3.1). Both aspects are complementary. Critical professional knowledge cannot be isolated from a personal commitment to society and this personal commitment must be related to the content of professional expertise.

3.3 *Diffusion of culture*

Under 'diffusion of culture' as one of their objectives most universities in LDC have usually understood promoting music, theatre, journalism or diffusion of reading materials. This conception should be revised. It seems to imply that culture is a luxurious and sophisticated product, reserved for the privileged, and that universities are supposed to convey this product to the portion of the population that is able to consume it.

The function of universities in regard to culture in LDC has a deeper meaning in light of an emerging NIEO. Culture can be defined as the ensemble of collective behaviours – inspired by values and expressed in institutions – of any given human group. Cultures are expression of social power, and intercultural relationships (within one nation or among nations) should be envisaged as power relationships. There are dominant and dominated cultures; there are emergent and fading-out cultures.

From this perspective, the relationship of universities to the different cultures has inevitable political overtones. By virtue of their capacity for legitimating values and elaborating cultural models (Sections 2.2.3 and 2.2.4), universities can strengthen a weak culture or weaken a powerful one. Rather than 'diffusing culture', universities striving to contribute to a world of freedom, justice and increased equality, should aim at strengthening cultures unjustly dominated and promoting exchanges with other cultures, in order to foster interdependance.

Universities should also consider cultures as processes of 'collective learning', in the sense used by the 'Learning Project' of the Club of Rome.[9] If learning is the 'development of competence for action in new situations', the NIEO can be conceived 'as being essentially a learning process of unprecedented proportions'.[10]

The cultural function of universities implies consequently promoting those collective learning processes that can enhance the capacity of human groups to understand and solve their problems. The document last quoted concludes that:

> The fact that the learning features, emphasized by the latest research on this topic, namely participation, anticipation, autonomy and integration coincide with the requirements for equality, pursuit of long-term objectives, self-reliance, cooperation and solidarity, stated by the NIEO, is extremely significant. It brings to the NIEO debate the mark of high optimism revealed by the long time proven capacity of mankind to unlearn in time the old formulas . . . at the very moment of the historical requirement for learning new structures.[11]

This is a promising avenue for re-defining the role of universities, both in LDC and in the highly industrialized ones, in light of the NIEO almost every desirable change can be conceived of and dealt with as a process of societal learning.

3.4 *Re-orientation of scientific research and technological development*

3.4.1 Characteristics of technological development

The strengthening of interdependance among countries, required by the NIEO, implies that LDC should develop a scientific and technological capacity of their own, which will allow their economies to become more sufficient and self-supporting.

A policy of technological development in LDC should make provisions for the following:

(i) Intensive training of human resources for science and technology.
(ii) Establishment of mechanisms for directing trained human resources towards work opportunities in the scientific and productive sectors.
(iii) Increase in resource appropriations for research and technological development.
(iv) Active and direct participation of researchers in the planning of scientific research.
(v) Establishment of a system of evaluation and re-orientation of research.
(vi) Liberal policy for import of scientific equipment and materials.
(vii) Repatriation of trained personnel working in foreign countries and immigration of qualified scientific personnel not available in the country.
(viii) Development of an autochthonous information and documentation base and training of documentation specialists.

The general goals of technological development imply specific learning processes among industry leaders, public officials and professionals. It is necessary to:

(a) Re-orientate technological demand in the productive sector towards national, instead of external sources. Management must be trained to adopt a new approach in demanding technology: instead of importing technological solutions and ready made plants and equipment, industry leaders should become aware of the need to promote and use local capacities of research and technological development. This implies new mechanisms of economic policy from government.

(b) Rationalize the search, selection and negotiation of foreign technology, according to local needs and to the overall social effects of technological options. Definite criteria should be borne in mind when selecting technologies: the contribution of that technology to national technological development, especially to the self-sufficiency of the economic process; its effect on the global industrial structure of the country; its social effects (for instance, on the increase of employment opportunities, the spread of salaries and income distribution); its contribution to the utilization of available natural resources; and its effect on ecology.

(c) Develop a capacity for technological assimilation. This capacity must be developed not only among investors and industry leaders, but among professionals, technicians and workers.

(d) Develop the local capacity for generating adequate technologies both in the major production units and in research centres.

These four areas imply distinct learning processes. Universities and research centres have a special responsibility to promote these learning processes and the indispensable underlying attitudes.

There is a counterpart to these learning processes in the developed countries. The efforts of LDC to build an indigenous technological capacity cannot succeed if developed countries continue to deal with LDC according to the conventional pattern of dominance. One example is that the international consortia that sell technology to LDC should agree to negotiate isolated technologies and not only 'technological packages'; they should also agree to include training and educational components in the transactions, in order to allow LDC to consolidate their own technological capacity. This is also a learning process, in developed countries, perhaps more difficult and more important than the ones to be promoted in LDC. Interdependance requires education on both sides.

3.4.2 A strategy of higher education, coherent with the process of technological development

The process of technological development in LDC demands a definite strategy on the part of universities. In designing this strategy the following components should be taken into account:

(i) Educational policies should be integrated into the national policies of technological development. Universities should assess their supply of professional careers as well as their research activities in light of the objectives and characteristics of national technological development.

(ii) Universities should establish permanent communication with government and the productive sectors in matters related to manpower training and research needs.

(iii) Emphasis should be given to the teaching of science and technology; an overall revision of curriculum content and methods is necessary. It might be advisable to establish core science curricula, common to several careers.

(iv) Research activities should be planned according to national objectives of technological development. New forms of organizing, administering and evaluating university-based research should be explored.

(v) Organization of research by 'problem-areas' (instead of disciplines) should also be explored. Specialized research should be limited to priority areas, in order to avoid dispersion.

(vi) Institutional research policies should be established, so that a correct 'mix' of basic and applied research or of spontaneous and contract research is achieved. (A dose of spontaneous research seems always necessary, even within a clearly defined research policy.)

(vii) Trained research personnel should not work individually, but 'critical masses' must be formed in every research unit of the institution. Ideal structure of research teams in each field should be continuously reviewed in light of experience.

(viii) Departmental organization should be encouraged as a means of linking teaching to research and promoting good candidates for scientific research.

(ix) Programmes of 'social service' and 'practicum' (stages devoted to practical training) should be instituted both at the undergraduate and graduate levels.

All these elements should be integrated into an appropriate strategy of higher education, according to the specific conditions of the country, in order to meet the demands of scientific and technological development. Universities have a major responsibility in consolidating an indigenous capacity for technological development. The present ambivalence of their activities in this domain is perhaps greater than in the field of professional training, but the margin for meaningful actions is also greater.

Because of the high cost of an adequate research capacity and the complexity of defining an appropriate path of technological development, only the major and best-financed institutions in LDCs will probably be able to develop a significant scientific and technological capacity.

4 Political Constraints of University Reform

This final section explores the political constraints that the proposed reforms will necessarily encounter. After examining the range of possible political positions of universities *vis-à-vis* the state in LDC (Section 4.1), some conclusions will be drawn on the feasibility of university reforms.

4.1 *Possible political positions of universities in LDC*

> The establishment of an international social and economic order based on justice implies changes in the present distribution of power. The development of world consciousness has not yet reached the stage in which the rich and privileged countries would be ready – in their own interest in the long run – to transfer voluntarily part of their power to international organizations. It is foreseeable that the necessary consciousness will develop only slowly.[12]

The political constraints of the NIEO are obvious at the international level. They are also present within each individual country, whether developed or not. In the case of LDC of the western world, governments generally represent the interests of the dominant classes and are the most typical element of the power structure.

If universities are to undertake actions to modify the prevailing power structure, it is obvious that the feasibility of such actions depends on the government's stand regarding possible changes, as well as on the nature of the actions launched by the universities.

In Latin America a wide range of conceptions can be registered about what universities should do in order to promote social change. Each of these conceptions implies a different position of the university regarding the state. It may be helpful to review these conceptions, ordering them from 'less to more', according to the degree of political confrontation that they imply:

(a) *The purely academic approach.* This conception views the university basically as a knowledge institution. Its contribution to social problems consists exclusively of the scientific study of those problems and the training of professional and technical personnel. Underlying this view is a conception of science as value-free, and of academic activities as isolated from political realities. The university exists 'outside' or 'above' social concerns.

(b) *Co-operation with development.* This second approach would accept the responsibility of the university to contribute to development, but only through the scientific elaboration of alternative models; the implementation and testing of these models would be left to other institutions. This conception acknowledges that there are value implications in scientific activities and there is therefore a need to take a stand in favour of a more human development based on justice and equity. It implies some degree of confrontation with the State.

(c) *Critical consciousness.* In this conception the basic function of the university is in reacting critically to decisions, of the state and power groups, concerning the direction of the development process. The university accepts an institutional 'commitment to society' (more clearly than in (b) above) and pursues the building of critical awareness among its students and in society at large.

(d) *Positive social interaction.* This position considers it legitimate for universities to intervene directly in the development process through actions aimed at influencing its direction. Beyond studying and researching social problems and beyond promoting and increasing awareness of them, universities become direct agents of social change, organize and manage field projects in the communities and intervene in concrete situations. The limit to be excluded is direct intervention in politics.

(e) *Direct political action.* A step further, the university is considered to be a political force which may legitimately use its social power in the class struggle and directly organize political action, if necessary. The limit excluded from this position is violent action.

(f) *Revolutionary action.* Universities are seen in this conception as direct agents in the global revolutionary process, not excluding the recourse to violence. Consequently, it would be demanded from them to undertake ideological indoctrination and to serve as intellectual bases for revolutionary activists. Confrontation with the state is here at its highest.

(g) *The dissolution of the university.* A more extreme position proclaims that universities should procure their self-destruction, in order to serve society. From a theoretical perspective of Utopian socialism, the present university is viewed as an illegitimate private appropriation of knowledge. In the same way as the state alienates social power and private property alienates collective resources, institutions of higher education represent an alienation of social knowledge. Although this conception is purely theoretical, it may have practical bearing on the attitudes of students and affect institutional behaviour.

These seven conceptions of the relationship between universities and social change imply very different degrees of confrontation with the state. Consequently, the feasibility of actions emerging from each of them varies greatly.

This chapter considers position (d) ('positive social interaction') as the most adequate to most situations in LDC. In the light of the theoretical framework advanced (see Section 2.1), conceptions under (a), (b) and (c) would not meet the expected contribution of universities to diminish dependance and foster social change; sole academic activities, even if related to social reality and committed to values, do not alter the fact that universities, as social institutions, are *de facto* contributing to reinforce the dependance situation in many ways. On the other side, positions (e), (f) and (g) bias the nature of universities as institutions made for intellectual inquiry and not for direct political action.

It is therefore in reference to position (d) that we will now discuss the conditions of feasibility for the university reforms proposed in the foregoing section.

4.2 *Political feasibility of the proposed reforms*

The lines of action explained in the second section of this chapter imply that the universities of LDCs may and should pursue objectives contrary to the established power structure. This is feasible obviously only within certain limits and under certain conditions.

Four reflections occur which may help in the planning of this type of reform from a realistic political approach:

(a) Although universities have a great deal of freedom in discussing and researching the problems of their societies, they must be aware that they do not enjoy the same degree of freedom when engaging in concrete programmes of social action. Direct action which affects social and political realities must comply with the national legal order and major national policies concerning the direction of development. Awareness of existing limits should guide the selection of projects and a strategy should be adopted that combines efficiency with feasibility.

(b) Projects which involve the university overtly in party politics should be avoided; in most political settings this type of action goes beyond the limits of feasibility. The same holds for projects which, by their very nature, lead to violent conflicts or bias the nature of the university.

(c) On the contrary, there is a wide margin for actions and projects that contribute effectively to the changes required by the NIEO, as described in this chapter. It seems politically feasible, in most settings, to introduce curriculum changes which will gradually alter the models of professional practice and provide better services to the underprivileged; to launch experimental projects in community development aimed at designing new forms of organization of production or at introducing more appropriate technologies; to conduct adult education programmes in order to increase social awareness among the oppressed; or to train unemployed for self-employment. These actions undoubtedly affect the power structure. But if they are based on the contradictions of the development process and their operation is judicious and prudent, it is not likely that political circumstances will suffocate them.

(d) In establishing the limits of feasibility, consideration must be given, on one hand, to the nature of the university as an institution concerned basically with the advanceand diffusion of knowledge and, on the other, to the capacity of the university to transfer part of its institutional power to the less privileged groups. Feasible and meaningful projects will be those which pay due consideration to both aspects.

5 Conclusion

This chapter has tried to illustrate some lines of action which universities in LDC should follow in order to promote the social changes required by the NIEO.

The theoretical possibility of such changes has been approached in Section 2. The conditions of their political feasibility have been explored in Section 4. Section 3 has explored the major avenues of meaningful actions: the re-orientation of professional studies, the socialization of students, the responsibility of the university regarding the political dimensions of culture and the re-orientation of scientific and technological research.

The subject is open to discussion. The particular theoretical approach adopted in this chapter, based on the 'theory of dependance' and focusing upon a strategy of change emerging from the contradictions of society, is but one of many possible approaches.

It is to be hoped that other approaches, emerging from different university traditions and ideological trends will enrich this needed debate.

6 References

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X The New World Order and its Implications for Higher Education in France

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Abstract As far as French higher education is concerned, it is expected that its contribution to the new international order will be oriented towards the improvement of efficiency in international academic relations. These relations are to be conceived in terms of a strategic system based on a concern for a dialogue with the developing countries and extensive decentralization. Study groups bringing together the heads of French and foreign institutions will permit joint medium-term projects to be worked out. The goal will be to bring about a change in the training systems so as to develop a strategy of these relations based on a common understanding and outlook of the problems, pertinent language, adequate information, evolving procedures which preserve the varied wealth of initiatives, and strict methods of evaluation in order to correct the course and encourage the most highly motivated. This conception leaves no more room for distinctions between dissemination, cultural co-operation and technical co-operation. Unless the dialogue is conceived on the parallel paths of pure culture and technology, which is absurd unless one wants to increase the social decomposition of the developing countries, the concept of integrated co-operation will inevitably come to the fore.

1 Introduction

The promotion of the concept of a new international order at the very time when the world is becoming aware that development inequalities are being reproduced rather than reduced is in itself a favourable sign. Here we have a concept on which both the developed and developing countries agree, and this fact is all the more significant in that such agreements are rare and frequently ephemeral. The developed countries see in the concept a way out of the world crisis, made possible by the erosion of the present factors of uncertainty (price of raw materials, oil). The developing countries look to the concept for assurances concerning their industrialization, the sale of their produce, access to technology, the reduction of unemployment and underemployment, and respect for their cultural identity.

The present unanimity has not been achieved without reserves and it certainly conceals profound divergences with respect to the concrete contents of the new order. In the spring of 1974, at the special session of the United Nations requested by Algeria, the concept was launched by the Group of 77. Following tough negotiations, the concept led to the General Assembly's appeal in December and the Charter of States' Economic Rights and Duties. It is still too soon for historians to clearly discern a link between the establishment of the new order and the political designs and reserves of certain States.[1] What increases the difficulty is that the concept of a new international order is coming to dominate international ideology, in most senses of the term. It is becoming at once the intellectual expression of a system of interests to the extent that it cheers up those who are apprehensive concerning a way out of the crisis, the product of a global system of interpretation of the world economy, delineating a polarized State-Nation space (centre-periphery; North-South, etc.), an ideal image of the universal harmony between peoples, with the poorest nations catching up and the richest nations continuing their growth. Inasmuch as an ideology, it becomes more attractive and all the more abstract the more it covers. However, at the same time, it becomes less operational, since it covers up incompatibilities and finally takes the form of an impressionistic rather than a figurative image.

If the new order is to result in the developing countries' control of approximately 25 per cent of world industrial production by around AD 2000, a minimum coherency test must be carried out. Will it be possible to really control the main agent of this industrialization, namely the transnational company, in order to meet the objective of national economic self-reliance? Is the economic objective itself, namely, industrialization, equality in transfers of values, and access to technology, easily compatible with endogenous development, which implies the rejection 'of the direct extension to the entire world of the knowledge, ways of thought, and life styles of the specific experience in a single region of the globe', and the possibility 'of relating each local development to the local values and culture'?[2] To pose these questions is to admit our ignorance and accept the idea that at the worst the concept of a new order will render the international community the valuable service of reducing some of its conflicts and that, in the best of cases, it will truly serve to consciously orient the evolution of world integration. In the former case, the concept will remain for some time one of the trimmings of speeches made in the international arenas, while the reality of world integration will continue to develop according to its own specific laws which are conflictive and asymmetrical. In the second case, the concrete contents of the new order will be sufficiently specified and accepted to also serve as an operational point of reference.

This second possibility implies three preliminary conditions. Firstly, more attention must be paid to the laws of internal composition of the world system than to the rules which the States may set themselves. This is why, in the remainder of this chapter, I shall speak of a new world order, to signify that the object under study refers to the contents of the world system in course of restructuring rather than to the set of agreements constituting what is conventionally called the new international order. Secondly, the title of new order must be justified. Even assuming the existence of major cleavages in the world system, it is clear that the new world order cannot be dissociated from past evolution and accordingly the old order. Finally, one must remember the primordial importance of economic mechanisms in this structuring process. This is why the concept of a new world order will here have as its counterpart in the economic field the concept of the new international division of labour, and why the analysis of socio-cultural trends will be compared with it. This is the viewpoint that I shall adopt in this chapter in posing the question as to the implications of the new order for higher education in France. The question requires, in this specific case, the following methodological guidelines:

(i) Firstly, our reflections must take into account the reciprocity of influences. There is not, on the one hand, a new world order being established, and, on the other, a strategy for adaptation of French higher education. Rather, we have a nation closely integrated into the world economy, with its cultural output evolving in mutual relation with that economy. What must be analysed is this system of interrelations.

(ii) Secondly, a real understanding of the evolution of this system implies an effort to relate the economic and socio-cultural spheres. In view of the evolution of the international division of labour and the changes which have occurred in France's own position, an examination of this position within the context of the history of higher education since the 1960s sheds considerable light on this history.

(iii) And, thirdly, the cultural forms, which are or can be exported by French higher education, will be located within the framework of this history. We shall endeavour to evaluate the role left to voluntarism and assess to what extent a nation such as France, which has probably, in the course of this period, moved for good into the position of relay or intermediate capitalism, can still, in cultural matters, export something other than what she herself imports.

2 External Influences and the Nature of the Transmissible Elements

In order to understand the exact nature of the elements which can be transmitted by French higher education, one must assess the weight of external influences compared with influences forming part of a more specific cultural heritage. No doubt one must also evaluate the prospects for evolution of these weights in order to forecast France's future contribution to the new order. This position, which may seem thoroughly trivial unless one rejects the obvious fact that France is now in a position such that what is transmitted by it is no longer completely its own, nevertheless requires certain preliminary methodological remarks.

2.1 *Questions of method*

2.1.1 The debate between internal rationality and external rationality

It is clear that the viewpoint according to which independent nations make exchanges (of trading or cultural goods) according to clearly specified relative characteristics, is outmoded. The world trade market is an abstraction that no longer has any real meaning apart from certain very special cases which, in any case, require an understanding of the power systems controlling goods traffic. The exchange of goods is no doubt explained less by the market price than by modern forms of international production structuring. These remarks are all the more pertinent when transposed to the cultural level, where it is hard to see how the theory of human capital can be transferred to an international level to become the central feature of an analysis of cultural exchange.

Accordingly, we must clearly recognize the need to think in terms of broader systems having overall coherency. It is this need that has given rise to the abstraction of a world economic system centring around a dominant production system. It is, of course, a matter for controversy as to whether there exist one or two world systems, each governed by a specific production system. One may prefer to employ the abstraction 'production system' (capitalist production system, monopoly-capitalism production system, state monopoly capitalism, etc.), or, rather, group the world system (or systems) around their central pole (United States, Soviet Union). It makes little difference in the end; what is essential from the methodological viewpoint is that we agree to enlarge the space of rationality, which is the only of obtaining an overall view of the components of the international economy. In this respect, France's economic position must be apprehended through the position the country holds in a division of labour compatible with the present forms of reproduction of the capitalist production system. In so far as concerns France's cultural position, it will depend on the country's economic role. Accordingly, the first assumption we shall make here is that the concept of higher education, its contents and its institutions have evolved hand in hand with the role played by France in the international division of labour.

However, this assumption is merely a first step enabling us to do away with the illusion of economic and cultural self-sufficiency, on which, precisely, the conventional viewpoint is based. It hardly, however, enlightens us as to the exact nature of the link between higher education and France's economic position.

One way of viewing this link 'is to accept the primacy of the economic over the socio-cultural and, in radical expressions of the argument, the complete submission of the latter to the conditions of capital production and reproduction'.

For example, several writers have interpreted along these lines the previously unpublished chapter of Marx's Capital and treatise on labour.[3]

By this interpretation, the organization and technical level of labour depend on the method of creation of capital gains (both absolute and relative), and its reproduction depends on the sectional structuring of the production system. Since, it is assumed, the capitalist production system is established worldwide, any national differentiation can only be explained by the existence of a law of unequal development of capitalism, which intentionally leaves room for a certain amount of heterogeneousness (C. Palloix's areas of division), or which brings about homogeneity after a certain time lag. This is the approach adopted nowadays to many problems, both economic and sociological. To the theorists of underdevelopment, who set the centre over against the periphery, it will be replied that the state-nations have vanished and that the international reproduction of capital takes place according to an overall logic and not as a result of the central countries' imperialism over the other countries.

The distinction between external rationality and internal rationality at the level of a particular space would no longer appear to be justified, in view of the following series of proposals:

(i) There exists a dominant production system established worldwide.
(ii) By this dominant production system, each nation is inserted into an international division of labour which enables the system as a whole to be reproduced. To this position in the system correspond methods of creating capital gains and a structuring of the production system (basically, specific relationships between the two sections; certain nations have a sectional coherency permitting autonomous reproduction, while others have none).
(iii) Forms of work, and, shortly, the organization of the education system, and the socio-cultural system, are 'determined' by this position in the system of international reproduction.

The analyst who adopts this approach is then placed in a contradictory situation, which Frank has clearly pointed out:[4]

(i) either he carries out 'a theoretical historical analysis of the overall process of capitalistic accumulation in the world and the changes in production methods which go along with this in the various sectors concerned', which is an insuperable task and can only lead to general statements concerning the specific object under study; or
(ii) he must transpose to a particular object the Marxist categories used for conventional analysis of capitalism, in which case the results will be disastrous.

We may note in passing that modern sociology encounters the same debate in dealing with labour and training questions. Many sociologists only recognize the relevancy of analyses at the level of organization of labour and knowledge (training institutions, factories, workshops) if they are relocated within the framework of the goals of capitalist society as a whole, which aims at employing the going value of labour power to set to work its capital, which divides the workers both technically and socially. Other sociologists, on the other hand, emphasize the specific nature of certain social elements at the level of the organizations themselves, elements which cannot be reduced to an analysis of capitalist society as a whole.[5]

It would seem, then, that it is very easy to go from one extreme to another; the world view, which is essential in view of the present structuring of the international economy, rapidly leads to a universalistic view according to which specific national features are regarded as residues, the socio-cultural field is determined by the economic or technical fields, and all freedom of decision is refused to the State, the state-Nation giving way to the state-territory, the space in which capital is reproduced.[6]

2.1.2 Higher education in the dialectic of national social integration/ external stimuli

While it is easy to understand the ideological reasons on which these positions are based, one cannot help but feel that the result is to set up a rather sterile opposition between orthodox neo-Marxism and a Third World current or a form of empirical sociology based on idealistic/humanistic considerations. And yet, the most elementary observation suggests that unless we are considering the dominant nation, which alone has some chance of exporting the culture produced by it, or unless we consider the case of a completely dependent nation which has no possibility of itself producing the least form of social culture. the most fruitful concept is that of impact between transverse stimuli connected with the modern forms of insertion into the international division of labour and the mechanisms for production of a national social culture handed down by a specific historical heritage.

2.2 *Terms and contradictions*

2.2.1 The first term of the contradiction

This concerns a society's capacity for bringing together into a coherent system the various internal vectors which weld into a society the individuals of which it is formed. In a nation examined at a given point in time and imagined completely shut off from external influences, it is hard to create compatibility between the processes of social development brought about by the society on purpose, its historical heritage, and the result of the crises it may go through. When these three elements manage to be combined in a coherent social field, one can speak of national social integration. This integration is accordingly the object of a constant battle between modernism and the weight of the cultural heritage. When one allows, in addition, for the possibility of problematical cleavages which will specify certain forms of class antagonism, the related social norms and their institutional consequences at the level of the national space, one gets an idea of the complexity of the processes which may lead to this integration. It may be thought that they will centre around a system of relations which can be rendered concrete on the basis of abstract categories and relations between social agents.

Firstly, the concept of national social integration will be defined relative to the cohesion which has been attained in the society in question, between a system of values, social-development processes and production organization. By system of values will be understood a culture, that is, all the symbolic objects produced by the society, its ways of life and forms of communication. The processes of social development will concern more especially the mechanisms of social stratification, the production of qualifications, organizational options and the integration of the individual into his environment. As for production organization, it will be manifested chiefly in a division of labour, a technology and a scale of production. It is clear that the achievement of cohesion between these levels poses the problem of the determining level(s) (or authorities) permitting structuring of the social space. At this stage, I shall take care not to adopt any position concerning the nature of this determination, preferring, rather, to leave open the question as to whether this integration takes place around production organization or whether, on the contrary, the social entity takes root in the sphere of values. One can see, of course, the consequences for the study of higher education which would result from a definite position one way or another. What must, on the other hand, be emphasized is that society will produce this social cohesion by means of several vectors more or less controlled by the State,[7] but no doubt chiefly by its education system. It is the education system which has the task of at once passing on inherited knowledge, integrating individuals into a production system and welding them into a society. It is accordingly the central integrating mechanism. This is also what makes it hard to analyse, since the education system is simultaneously concerned with the three levels mentioned. Many writers, moreover, have fallen into this trap, by only posing the problem of 'the school' in relation to a privileged viewpoint, which was the cause of obscure controversies.

A thorough study of the relations between the social agents concerned leads to an understanding of the relations between the state, the organizations entrusted with dispensing culture, companies and the individuals who are consumers of knowledge and status. These relations are permeated by complex class struggles to the extent that the administrative oligarchies play a role which can hardly be reduced to that of exclusive servants of the bourgeoisie. In any case, to integration between a system of values, a process of social development and a production organization will correspond a form of integration between the state, the university or para-university institutions, the companies and individual users. Although there is no question of adopting the hypothesis of absolute cohesion of the plans and actions of these social agents, we shall assume that a sufficiently strong nation-state can control certain incompatibilities by conciliatory procedures, in particular arbitration.

2.2.2 The second term of the contradiction

This concerns insertion into the international division of Labour, which can be characterized by the acquisition of a particular position in the world production system. Accordingly, it is firstly through a position in the world production organization that will pass the transverse shock which will batter the social cohesion outlined above, since it is clear that an industrialized nation which opts for insertion in the world as France has done since the 1960s, accepts production specialization, a technology, a scale of production, and work organization methods which will be at least in part affected by external influences. This option will have consequences at the level of social-development processes and the system of values, it will affect the actions of the social agents, and in any case will change the nature of the social integration previously achieved. How could a rate of penetration by direct foreign investors, which has become greater than 30 per cent in certain branches over the last twenty years, have no noticeable effect on technical levels and work organization, the forms of social relationships (work hours, professional relations), social and job mobility and life styles as a whole? On a more subtle level, the fact that a nation specializes in certain production activities (consumer goods, capital goods, etc.) or restructures its industrial facilities to bring them up to the level of the most efficient producer's facilities, is bound to have some effect from the socio-cultural viewpoint.

However, insertion in the world economic system also has direct effects on levels 1 and 2, namely, effects which do not pass through the production system. These effects attain the sphere of values by various means: communication system, advertising, the production, exploitation and forms of dissemination of scientific and technical discoveries, etc. There will accordingly be immediate effects on the endogeneous production mechanisms of the national society, which effects, in certain cases, will be added to this production, and in other cases will transform it.

2.2.3 An understanding of the contradictory process

Bringing together the two antagonistic forces outlined above is a complex matter, since it implies an overall analysis of the social change brought about in France. Such is not my ambition in this chapter. I shall merely outline a general principle of analysis and precisely locate higher education, which will involve a redefinition of its functions.

The general principle of analysis which appears best able to account for the elements of the process will be referred to as a 'principle of fissiparity' to the extent that it represents a reproduction movement with destructuring/restructuring of the main components of the system. Application of this principle amounts to assuming, in the case of France that:

(i) around the 1960s France still had a strong, endogeneous social cohesion, heavily influenced at the socio-cultural level by its heritage, and produced by marked national vectors (particular form of corporate organization, hierarchical forms, education system, professional relations, etc.); and

(ii) this social cohesion, faced with opening on to the world economy, became disorganized under the pressure of modernizing forces imposed from the outside and the mediatization/legitimation of these forces by the State; and

(iii) what characterizes the years 1960-80 is, precisely, fissiparity (i.e. the fact that this period breaks down into a period of social disintegration culminating in the breakdown of values in 1968 and a period of re-establishing order, which commences around 1973), although it is not yet possible to see very clearly the precise forms taken by this restructuring, or to say whether the social system has been reproduced or not. To obtain a theoretical key for understanding this process, we may say that insertion into the international division of labour increased the multipolarity of influences, and acted selectively by setting up a hierarchy of points of impact; observing this process during the restructuring period, one can see disjointed areas, spaces in course of modernization, neutral spaces, and spaces in reaction. The question is to know whether a new social cohesion may subsequently be obtained, or whether the evolution will be towards a lack of social cohesion, which we shall define in this chapter by the inability to provide a certain amount of internal homogeneity in the system of values, the process of social development and production organization, and by the inability to bring about satisfactory integration between these levels. Put in a less abstract way, the analysis will involve posing the question as to whether the present destructuring/restructuring processes pre-figure in France a socio-cultural picture similar to that of the developing countries (i.e. characterized by the lack of communication between the modern space and the more traditional space, and by marked social cleavages), or whether, on the contrary, the national society will be strong enough to integrate forces coming from the outside into a coherent structure.

2.3 *The concrete reality of the action of external forces on French higher education*

2.3.1 Forces acting through the production system

Even a brief study of the evolution of the French production system shows:

(i) the decisive nature of France's insertion into the international division of labour, and its ambiguous results;
(ii) the resultant polarization of the production system;
(iii) the reorientation of demand for qualifications, pre-figuring a differentiated impetus towards the education system.

Table X.1 provides a fairly good summary of more detailed studies, and justifies the working assumption according to which the period 1960–80 is that of France's insertion into the world economy.[8] The difficulties involved in this insertion, which can be seen at a glance, suggest that the insertion did result in a strengthening of the position of the French economy. The general process may be qualified by the following three characteristics:

(i) great opening towards the outside world, which is manifested both at the level of export/import opening coefficients, and at the level of the index of import penetration of the French domestic market;
(ii) a tendency to trade imbalances and despecialization at the inter-branch level;
(iii) a major increase in the penetration of direct foreign investments. Whereas in 1962 foreign firms controlled over 10 per cent of the turnover in only seven industrial branches, in 1973 the branches where over 10 per cent of the turnover was controlled by foreign shareholders numbered fourteen and for four of them (petroleum, electrical industry, chemical industry and mechanical industry), the share is over 30 per cent.

What is most characteristic of the production system's reaction is its differentiated and polarized aspect. The first point to be emphasized is the major rise of the tertiary sector, and increasing state control in the services. From 1962 to 1975, the proportion of the working population employed in the services increased from 42 per cent to 51 per cent, whereas it remained stable in industry (30 per cent) and declined considerably in agriculture (20 per cent in 1962, 9.5 per cent in 1973).

No doubt this movement is common to all the major industrialized countries to the extent that it represents the consequences of low growth of agricultural production and special forms of accumulation in industry (rise in the capital/labour ratio, concentration, rise in work productivity). Nevertheless, the extent of the movement and the fact that it has gone hand-in-hand with a major rise in state control suggests that the extension of the services is also connected to a feeling of insecurity *vis-à-vis* the industrial sector, and more generally the production system properly speaking. It would appear, then, that there has been a reaction by the national society to the thrust of external forces, a reaction motivated by the inability or refusal to accept the consequences of insertion into the international division of labour.

The second point strengthens this impression to the extent that one observes

Table X.1 The major trends relating to insertion of the industrial system into the international division of labour

$\alpha = \frac{\text{Exports}}{\text{Production}}$		$\beta = \frac{\text{Imports}}{\text{Production–Exports+Imports}}$		$\gamma = \frac{\text{Exports–Imports}}{\text{Exports+Imports}}$		μ = Index of penetration	
Opening index: branches for which $\alpha > 20\%$ (* for $\alpha > 30\%$)		Index of penetration of the domestic market: branches for which $\beta > 20\%$ (* for $\beta > 30\%$)		Index of specialization: branches for which $0 < \gamma < 1$ (* for $\gamma > 0.3\%$)		% turnover attained by foreign companies > 10% (* for $\mu > 30\%$)	
1962	1973	1962	1973	1962	1973	1962	1973
Textiles* Iron and steel Shipbuilding, aeronautical industry Non-ferrous metals Leather Automobile Chemical industry Glass	Shipbuilding, aeronautical industry* Non-ferrous metals* Textiles* Leather Chemical industry* Automobile* Iron and steel Glass Miscellaneous industries Cardboard Electrical industry Mechanical industry Clothing	Non-ferrous metals* Textiles Solid minerals Petroleum, natural gas Chemical industry	Non-ferrous metals* Textiles* Chemical industry* Leather Shipbuilding, aeronautical industry* Solid minerals* Cardboard* Iron and steel* Petroleum, natural gas Wood Glass Mechanical industry Electrical industry Automobile Miscellaneous industries	Clothing* Glass* Shipbuilding, aeronautical industry Automobile Miscellaneous industries Metal processing Leather Iron and steel Publishing Electrical industry Textiles Building materials Chemical industry	Clothing* Shipbuilding, aeronautical industry Automobile Publishing Glass Electrical industry	Petroleum* Chemical industry Mechanical industry Non-ferrous metals Electrical industry Automobile Agricultural industries	Petroleum* Electrical industry Chemical industry Mechanical industry Metal processing Non-ferrous metals Iron and steel Cardboard Miscellaneous industries Building materials Glass Automobile Agricultural industry Leather

a far more marked polarization of the industrial branches in 1973 than in 1962 (dates chosen because they correspond to the two industrial censuses). Whereas in 1962 the group of the consumer-good production branches was little off-centre compared with the capital-good and intermediate-good branches, we clearly see the appearance of:[9]

(i) a group (consumer goods) which, with the exception of the agricultural industries, is characterized by mediocre performance indicators (growth of value added, work productivity, etc.) and relatively unskilled labour;
(ii) a group of very high performing branches, generally nationalized and specialized in the energy sector: petroleum, gas, electricity and water;
(iii) with respect to the capital-good and chemical branches, their progressive nature is far less apparent than in other similar countries such as Germany, for example. This fact suggests that adaptation to the requirements of international competition has not come about easily at the highest level, and that the industrial system has instinctively fallen back on the energy sector and certain other very specific branches of economic activity (the automotive industry in particular).

However, where polarization is no doubt most apparent is at the level of the movement of qualifications. In the context of a rise in the average level of qualification and an increase in the demand for technicians, it can be observed that the branches which in 1962 were already qualified have become more qualified than the others in 1975, whereas those which were relatively unqualified have become even less qualified. The result is that the consumer-good production branches have attracted unskilled jobs, whereas at the other extreme, the nationalized energy sector and certain capital-good branches (in addition to telecommunications and the chemical industry have attracted high qualifications. The form of insertion into the international division of labour appears to have governed the movement:

(i) on the one hand, by grouping together part of the higher qualifications in strategic sectors where the jobs are often reserved for special higher schools;
(ii) on the other hand, by direct foreign investments, participating in activities requiring high qualifications so as to benefit from advanced technology. In this case, foreign investment has tended to have the effect of raising average qualifications; and
(iii) finally, by obliging the least competitive branches to lower their qualifications by extending the most efficient production processes. When this movement is the result of direct foreign investment, it then tends to lower average qualifications, the aim being to draw a profit from mass production at the lowest possible cost.[10]

2.3.2 Forces which have directly affected the system of values and processes of social development

This segmentation of the production system has been paralleled by a similar movement in the socio-cultural sphere. Without going back over points which have been very frequently discussed over these last few years, we may simply recall that everything that normally characterizes a system of values, namely, a conception of man, his relations with nature and time, the forms of human activity and the interrelations of the social agents, has been affected by the new trends. Accordingly, productivism grew up, with its corollaries of priority being assigned to growth, and a rise in mass consumption based on a veritable materialistic cult. The cosmopolitan option results in an increased division of labour, which entails increased job fragmentation and a preference for extensive specialization, frequently to the detriment of a more general understanding of man's own integration into society. The managerial culture directly imported from the United States, characterized by very specific models, became a model of behaviour for a large part of the elite responsible for organizational management. The social mobility which is essential for adaptation of the production system became one of the central features of the ideology governing workforce management, and went hand in hand with a very special way of treating certain marginal categories (in particular, immigrant labour).

In short, these elements, along with many others, are indisputably connected with France's option for integration into the world economy. What is remarkable is that the socio-cultural system has reacted in the same way as the production system, that is, it has become decomposed. The force of the external stimulus has been such that the national society has been unable to integrate it. Whereas certain components of the socio-cultural system immediately adopted these new values under the pretext of modernism, without making much effort at adaptation, other components adopted a completely reactionary position and formed pockets of resistance defending traditional values or endeavouring to invent new values. A more detailed study would undoubtedly show that the mechanism of fissiparity which affected the production system corresponded almost exactly to the fissiparity of the socio-cultural system. The extent of the rise of the tertiary production sector, like the falling back on strategic sectors with extensive State participation, can be explained by the search for a refuge for certain aspirations which are not directly cosmopolitan or productivist. The result was a fundamental debate concerning the predominant commitments of French society, a debate which led to new alliances. Whereas the trade unions' position was frequently that of accepting many modern values and the forms of the production re[illegible]at, at least so long as this promoted State intervention and did not cause any direct unemployment, a spectacular convergence was witnessed between the ways of thought of senior government officials and the new-style managers of the industrial groups, coming from the same *grandes écoles* (higher schools). At the same time, intellectuals, a small bourgeoisie in the tertiary sector, and even certain heads of small and medium-size firms more and more frequently joined together in contesting the imported values.

In this general context, higher education has at once a central position by virtue of its social function and a highly vulnerable position by virtue of its underlying nature.

In the first place, it contributes to the creation of national social cohesion by its action in each of the fields concerning it. It exerts an influence on the system of values by the knowledge it helps transmit and transform by its critical reflection. It welds individuals into a society, since it produces higher qualifications, and accordingly the nation's cadres, with the consequences that follow from the viewpoint of conception of hierarchical organization and social relations as a whole. It is involved in production organization by its contributions to research and discovery and the implementation of new technologies, and it influences the insertion of graduates into the production organization by the way it deals with the training/employment relationship. Inasmuch as a state system, it is supposed to be subordinate to the goals set by the authorities, it is even one of the chief mechanisms for attaining these goals.

In view of the options taken around the 1960s, it was accordingly logical to demand of higher education that it adopt a more technical direction and promote among the students the cosmopolitan/productivist cultural model which would permit the French economy to evolve from the position of a colonial power to that of a competitive power on the world market place. This, moreover, is very precisely what was proposed for the education system as a whole by the Fouchet Reform (1966) and the Fifth and Sixth Plans (1965-75). The very manner in which these plans posed the question of the relationship between training and employment is illustrative in this respect. On the principle that a major part of the responsibility for the imbalance between job supply and demand could be laid on graduates' qualifications, an endeavour was made to establish a close correspondence between a certain type of qualification and a certain type of job, and accordingly between a given technology and a closely specified job content. This conception, which 'overvalues the role of technology', as was later pointed out in the report by the education and training commission for the Seventh Plan,[11] clearly shows to what extent the external option had been adopted by the planners. These planners in effect limited higher education to its third function, forgetting that it is an organized whole having its own life and faced with a specific problem, the evolution from an elitist education system to a mass education system, which has been rendered necessary by the influx of students.

After its role as agent in bringing about a social state, higher education is also a set of institutions provided with a certain autonomy, and forming a number of human communities. It is also faced with the contradiction between those elements inherited from its past and those conveyed by the external shock. When its capacity for assimilation is inadequate, either due to the violence of the impetus, or due to its own institutional fragility or the internal factors of disequilibrium with which it is faced (the influx of new students), it amplifies the system's contradictions, and far from contributing to social cohesion, it accelerates the destructuring process to which it is itself subjected.

2.4 *The elements which can be transmitted by French higher education*

In accordance with the working assumption on which this chapter is based, it will be assumed that the contribution which can be made to the new world order by French higher education depends above all on what this education system has become as a result of the action of the external forces to which it has been subjected, and the educational crisis. I shall leave aside questions specifically relating to research, even though part of the following discussion may also probably be relevant.

2.4.1 Higher education as an agent of social cohesion, in the period prior to 1968

Up until the Law of 12 November 1968 on the orientation of higher education, the structure of French higher education appeared relatively stable, and there was even some justification for saying that it was basically the Napoleonic system.[12] With the exception of the setting up of the Collège de France (1530) and the Ecole des Ponts et Chaussées (1747), the splitting of Higher Education into Grandes Ecoles and Universities dates from the Napoleonic era. Numerous *grandes écoles* were set up as a result of the French Revolution, and the new faculties were set up inside the university by Napoleon. This division of labour between vocational schools and universities can still be found around the year 1969 (Table X.2).

Higher education was at that time governed by four major principles:

(i) The first principle, which I shall term fundamentalist/universalist, is prevalent both in the universities and the vocational *grandes écoles*. Like the university, these *écoles* tended to have a fundamental and universal conception of training, generously supplementing the technical training they dispensed with extensive basic knowledge and general culture. This principle, which was still very strong around the 1960s, was rooted in the need for unity of knowledge which has been a traditional concern of the French university.

(ii) The second principle is the hierarchical principle which indisputably governed social relationships in the higher education system, on the basis of the reforms carried through in the nineteenth century. The professor had absolute power once he held a Chair (permanent appointment made at the national level). He was the personification of power and knowledge, and there was no system of consultation enabling the other categories to make their voice heard.

Table X.2 Distribution of student numbers between universities and other institutions of higher education

	1965/66	1979/80
Universities	393,659	860,900
Institutions of higher education other than university	121,560	184,200
including:		
Grandes écoles and teacher-training colleges	66,978	80,800
Preparatory classes for the *grandes écoles*	28,842	42,000
Sections for senior technicians	25,740	61,400
Total	515,219	1,045,100

(iii) The third principle is that of centralization. The allocation of resources, appointments and curricula depended basically on the central authorities. Accordingly, the universities were deprived of any autonomy, the Rector exercising authority over the faculty Deans elected by their fellows.

(iv) The fourth principle concerns the universities' right of sanctuary, which is the modern version of ecclesiastical immunity, according to which the police force should not enter the university precincts.

It is on the basis of these principles that the higher education system was able to carry out its functions of social integration without any violent conflict. Due to the relatively limited number of students on the one hand, and the continuous and autonomous nature of economic growth on the other, it was possible not to pose the question of the adequacy of the training provided for the jobs available. The traditional nature of the French firms, which were still heavily protected by customs barriers, was perfectly suited to the candidates proposed to the extent that these candidates came from the well-to-do sectors of the population and were accustomed to hierarchic relationships. The values they transmitted (the still very conservative and traditional values of the French bourgeoisie's particular attitude of accumulation and protection of capital) corresponded to the way in which they viewed social development. As they accepted hierarchic relations and were able, due to their social origin, to aim for the highest positions, they could easily assume the role of executive and the relations it implies with the management and workers. If they opted for one of the professions or desired to remain in education, they were likewise received with open arms. In addition, as they were still suffering from the difficulties of reconstruction following World War II, they felt a great need to consume, and regarded it as perfectly natural to work more so as to be able to consume more objects. As integration into the production system posed no problem in view of the limited number of graduates, one could say that higher education trained the nation's executives. One is even bound to wonder whether the extraordinary inequality of opportunities for access to higher education (less than 7 per cent of students came from the working class, which in France represents approximately 37 per cent of the working population), is not a factor which objectively permitted higher education to fulfil the social function which was assigned to it at that time. As for the training itself, it was recognized throughout the world that it was relatively homogeneous from one university to another (as a consequence of the centralization of procedure for awarding degrees), and of a high level.

2.4.2 Tendencies to segmentation and crisis

It is this form of social cohesion which will be battered by external forces, within the context of a major increase in student numbers (see Table X.2). The decision to become integrated into the international division of labour made it impossible to maintain the qualifications provided and, more generally, to preserve the fundamentalist/universalist principle. It tended, on the contrary, to replace this system by an even more acute division of knowledge which, in certain cases (vocational schools), was even to follow step by step the polarization of the production system. This resulted in a twofold tendency to segmentation:

(i) The first tendency is a result of the direct connection between the higher education system, in particular the *grandes écoles*, and the production system. At one extreme were to be found the schools responsible for setting the movement under way and producing the senior executives for the major national firms on which lay the success or failure of industrial redeployment, the senior executives for the subsidiaries of transnational companies, and a large number of administrative executives at a very high level. At the other extreme, a large number of vocational schools in practice became specialized in training the executives of small companies and 'lame ducks' (which was the phrase used by the authorities to denote firms in trouble). In between these two extremes is the as yet undetermined space occupied by those firms and training systems whose fate will be decided by the effective position which will be held by the French economy in the international division of labour following the period of restructuring. Some of the firms in this space will join the 'modernized' bunch and will enable the schools covering the sectors to which these firms belong to have a certain amount of success in finding jobs for their students, while at the same time ensuring continuity of training programmes and the maintenance of a certain basic culture. The remaining firms will join the 'lame ducks' group, placing the training programmes connected with them in a position of instability and obliging them to become hypertechnical. This first tendency to segmentation also affected the university, which, for the first time, had to help train medium-level technicians (by the setting up of Instituts Universitaires de Technologie) to meet the needs of the production system.

(ii) The second tendency to segmentation is more basic, being due to the division of the university world as a result of the education crisis. It should be noted, firstly, that many of the academics concerned, in particular the teaching staff, gave a cold reception to the pressure exerted on them to improve efficiency and better adapt education to the requirements of technology and international competitiveness. However, it was at that time very hard to react in view of the ambiguous position of the teaching staff; even if their opposition was based on the defence of France's social culture, the teaching staff rapidly came to be looked upon as defending the principles of the Napoleonic university and as conservatives clinging to their privileges. This no doubt explains this section of the teaching staff's generally discreet attitude prior to 1968, and the fact that it was the most conservative members of the teaching body who felt freest to oppose external influences.

However, it was the consequences of the 1968 crisis which actually confirmed this tendency. Everything has been said concerning the 1968 crisis in France, and I shall merely show here how at the end of the crisis, the keenness of the academic debate indicated the risk of fissiparity in the university. From the students' viewpoint, the position was fairly quickly cleared up. In the first place, there is no doubt that the development of the world system, technological constraints and, later, a general attitude to life styles, were part of the reasons for their revolt. To become convinced of this, one needs merely look back over the statements made by the main leaders of the movement.[13] In the second place, the massive influx of students placed in an even clearer light the inadequacy of higher education for the French society which was being developed, and meant that the students could no longer accept the principle of hierarchy, the disguised selection process to which they were subjected (the Movement of the Twenty-second of March originated in questions relating to the exams), and inequality of opportunities. The university system was then to crumble, since each of the principles on which it was based had been questioned in turn: the principle of the unity of knowledge by the constraints of the international division of labour, the principle of hierarchy by the students, the universities' right of sanctuary by the decision to send the police into the Sorbonne, and the principle of centralization by necessity (the awareness, following the 1968 movement, of the uncontrollable nature of large universities). From the viewpoint with which we are concerned here, the 1968 law went a long way towards meeting the students' demands. On the one hand, it gave the universities autonomy and introduced student participation in the governing bodies, and on the other hand, it reversed its attitude towards the segmentation of knowledge by advocating interdisciplinary universities and multidisciplinary training courses.

Measures to introduce autonomy were a reduction in the number of universities, and the setting up of elected councils in which all categories of staff (teaching and administrative) and the students were represented. At the first level, the councils for the *unités d'enseignement et de recherche* (teaching and research units) were elected (these theoretically multidisciplinary units being designed to replace the old faculties), and at the second level, the representatives on the university council. However, after a certain length of time, the students felt that their representation was still limited, and, becoming aware of the university councils' lack of real power, were reluctant to take part in managing the new university institutions. The students expressed this reluctance very simply by abstaining *en masse* at the elections designed to appoint their delegates.

In so far as concerns multidisciplinarity and interdisciplinarity, this was clearly a reassertion of the principle of unity of knowledge. On the one hand, by having recourse to several disciplines to delve thoroughly into a subject of study, which implied the setting up of multidisciplinary education and research units. And, on the other hand, by strengthening the links between the various disciplines and defining the universities on the basis of the potential for interdisciplinary communication they might acquire. The students were, to the surprise of everyone, extremely sensitive to this matter, since after disorganized protests against the doctoral reform in 1975, they held the longest strike since 1968 to oppose the decrees implementing the reform of the second university cycle (1976), which was felt to be excessively job-oriented.

The teaching body, for its part, was to be clearly divided concerning the questions of autonomy and university management, and less clearly on the question of the segmentation of knowledge. The apprenticeship in democracy at the level of the university-institution councils was long and hard, in most cases the members were highly politicized, and there were abuses of majority one way or another. Moreover, the teaching staff had to become used to virtually permanent consultation with the other groups making up the university. The division was quite simply between those who were for student participation and as a consequence the orientation law, and those who were opposed to it. Rather curiously, those teachers who were most convinced of the need to apply the orientation law, and accordingly for legality with all its implications, were generally in the political opposition party.

This situation explains the confrontation at the level of the principle of the unity of knowledge. Whereas prior to 1968 the most progressive members of the university felt awkward about defending the universal aspect of university training for fear of being placed in the same category as the most conservative members, following the passing of the orientation law, they were the ones who clearly took up the defence of multidisciplinarity. Conversely, the most conservative teachers, even when they believed in these principles, opted for silence, fearing their position might be interpreted as a global endorsement of reform. Objectively, therefore, the viewpoint hostile to the 1968 orientation law and the viewpoint advocating vocationalization of the university and the segmentation of knowledge were in accord. This debate was extensively mediatized through the teachers' unions, which played a major role throughout this period, the autonomous union (*Syndicat Autonome*: SA) representing the conservative viewpoint, the national union for higher education (*Syndicat National de l'Enseignement Supérieur*: SNESUP) and the general union of education (*Syndicat Général de l'Education Nationale*: SGEN) representing the progressive viewpoint and the political opposition. These were the bases for the debate which took place inside the university, with, in the background, a problem of regulating student influxes, which from time to time led to threats of selection at university entrance.

2.5 *The State's refusal of the internal debate, 1968–1980*

Faced with these tendencies to segmentation, the authorities had two possible solutions: either to allow the internal debate within the framework of the 1968 orientation law, while controlling it so as to avoid the worst excesses, or to refuse it and exert their influence so as to permanently integrate French higher education into the productivist/cosmopolitan philosophy.

The first solution implied a certain amount of confidence in the higher education system's ability to adapt, confirmed the principles of the 1968 orientation law, and in practice involved recognizing a new system of production and transmission of knowledge, based on gradually bringing imported culture and the culture of French society into contact with one another.[14] The second solution involved isolating points of impact receptive to the planned change, and encouraging them, even if this involved crystallizing the tendencies to segmentation mentioned above, and turning one's back on the 1968 law.

The solution adopted was the second one, as could be clearly seen in the strategy of the various Ministers to whom were entrusted the destinies of higher education. Up until 1973, doubt was still possible, but after 1973 the forms taken by this restructuring became clearly evident. Until this date, the law on the orientation of higher education was defended because it was seen as a test of the Gaullist concept of participation. Even if the method of setting up the new universities was in some ways disturbing in that it was frequently based on an accumulation of old faculties for political rather than scientific purposes, resulting in a highly differentiated image of the interdisciplinary reality (cf. in Table X.3 the combination of disciplines in the various universities), the concern for developing a certain amount of autonomy (Edgar Faure) and the desire to receive a contribution by the universities to the definition of a strategy of higher education (O. Guichard working groups) were real. After 1973, the notions of participation and autonomy gave way before the desire to impel

Table X.3 The French universities and their resources in 1978–1979

University	Student numbers	Disciplines most studied	Operating expenditure per student (in francs)	Salary cost per student (in francs)	Complementary course cost per student (in francs)
Aix-Marseille 1	13,401	L,S	797	7,370	145
Aix-Marseille 2	18,864	M,SE,S,I	1,176	6,852	88
Aix-Marseille 3	13,121	D,S,SE,I	757	4,090	225
Amiens	9,683	L,M,D,S,I	659	5,555	201
Angers	6,638	M,L,D,S,I	618	4,700	351
Antilles	6,598	D,L,SE,S,M	831	4,136	441
Avignon	1,406	L,S	793	6,622	390
Besançon	11,145	M,L,D,S,I	759	5,853	136
Bordeaux 1	15,318	D,S,SE,I	879	5,740	195
Bordeaux 2	14,000	M,L	1,013	6,154	126
Bordeaux 3	8,309	D,L,SE,S,I	561	5,470	169
Brest	8,412	D,L,S,SE,I	740	5,398	170
Caen	12,490	L,M,S,D,SE,I	859	6,883	136
Chambéry	2,479	L,D,S,I	677	4,276	543
Clermont-Ferrand 1	8,153	M,D,SE,I	746	5,351	153
2	7,038	L,S,I	1,270	9,481	160
Dijon	13,297	L,M,D,S,SE,I	778	6,216	135
Grenoble 1	11,180	M,S,I	1,256	9,730	118
Grenoble 2	11,679	D,L,SE,I	459	3,263	246
Grenoble 3	4,711	L	582	4,997	105
Le Mans	3,408	L,D,S,SE,I	734	4,940	308
Lille 1	11,874	S,SE,I	1,336	7,150	169
Lille 2	15,075	M,D	782	4,709	93
Lille 3	9,936	L	585	6,370	188
Limoges	7,668	M,L,D,S,SE,I	763	5,565	210
Lyon 1	22,183	M,S,I	1,076	7,907	71
Lyon 2	12,579	L,SE,D	498	3,530	283
Lyon 3	9,316	D,L,SE	424	2,767	295
Metz	5,181	L,D,M	668	3,164	371
Montpellier 1	19,138	M,D,SE	700	5,077	112
Montpellier 2	7,478	S,I	1,522	12,101	125
Montpellier 3	7,231	L	478	5,832	103
Mulhouse	2,109	L,S,I	699	6,057	293
Nancy 1	11,964	M,S,I	1,423	7,536	95
Nancy 2	9,394	L,D,SE,I	461	4,236	139
Nantes	16,173	L,D,M,S,SE,I	774	5,770	165
Nice	16,690	S,D,L,SE,I	722	5,007	138
Orléans	5,988	S,D,L,SE,I	1,002	6,147	282
Paris 1	25,230	L,SE,D	499	3,517	253
Paris 2	15,082	D,SE	320	2,787	179
Paris 3	16,517	L	295	4,152	182
Paris 4	18,453	L	318	4,019	172
Paris 5	30,786	M,L,D,I	879	6,245	121
Paris 6	33,878	S,M	1,634	10,957	45
Paris 7	34,751	M,L,S	915	5,639	119
Paris 8	32,969	L,S,D,S,E	318	1,771	257
Paris 9	5,257	SE,S	1,185	6,143	599
Paris 10	23,536	L,SE,D,I	341	3,776	126
Paris 11	21,365	S,M,D	1,257	8,376	121

Table X.3 *cont.*

University	Student numbers	Disciplines most studied	Operating expenditure per student (in francs)	Salary cost per student (in francs)	Complementary course cost per student (in francs)
Paris 12	11,843	D,M,L,SE,S,I	724	4,696	298
Paris 13	12,756	L,M,S,D,SE,I	648	3,730	379
Pau	5,358	D,L,S,SE,I	735	4,759	299
Perpignan	2,757	D,L,S,SE,I	748	7,287	290
Poitiers	13,026	L,D,M,SE,I	978	5,259	158
Reims	12,528	M,L,D,S,SE	709	4,591	166
Rennes 1	16,322	M,S,D,SE, I	1,068	6,472	102
Rennes 2	8,528	L,I	399	3,745	187
La Réunion	1,765	D,L,S,SE	875	8,835	549
Rouen	12,775	M,L,D,S,SE,I	590	5,389	169
Saint Étienne	6,642	L,M,D,S,SE,I	550	4,291	264
Strasbourg 1	12,740	M,S,L,SE	1,451	9,981	80
Strasbourg 2	6,943	L	530	6,009	103
Strasbourg 3	5,703	D,S,I	357	3,124	219
Toulon	2,340	D,S,SE,I	456	4,259	555
Toulouse 1	10,093	D,SE	361	2,644	199
Toulouse 2	12,142	L	538	4,477	78
Toulouse 3	21,545	M,S,I	1,025	8,223	82
Tours	12,758	M,L,D,S,SE,I	688	5,369	200
Valenciennes	2,490	S,D,L,I	623	3,660	489

Students enrolled as at 13 December 1978

M = Medicine, Pharmacy, Odontology	197,037
L = Arts (Classics and Modern Literature, Geography, Human Sciences)	261,328
D = Law	131,620
S = Science	129,939
SE = Economics	55,493
I = University Institute of Technology	50,237

higher education in the chosen direction. The vocational offensive began during the Fontanet ministry, which dealt with the university institutions regarded as rather unruly by breaking them up and restructuring them so as to obtain on the one hand units favourable to vocationalization, having councils who politically supported the authorities, and on the other, the opposition units. This operation made it possible to at once set up new units clearly supporting the philosophy adopted, and to distinguish the minority of members of the teaching body who supported the established authorities, from the councils of education and research units and universities won over to the opposition. Under the Soisson ministry, the way to vocationalization was prepared; the concept of autonomy was in actual fact used to defend the principle of rivalry between the various universities, although this rivalry was void of any real content since the product could hardly be differentiated in view of the national validity of the diploma. In addition, the financial and staff resources depended on the central authorities, which had obtained the means to intervene on the 'market' by means of actions relating to specific programmes. This tendency was to be confirmed and carried further under the ministry of Madam Alice Saulnier-Seité. The segmentation of knowledge was completely with the institution of *maîtrise* (MA) diplomas. Although *maîtrises* of a basic cultural nature were still accepted, they were discriminated against in the allocation of resources as compared with *maîtrises* of a more vocational nature. Following the *licence* (BA), a student in France can prepare a *maîtrise* in Literature and the Human Sciences of education with 50 hours of supervised work per year, whereas 375 hours are required to prepare a *maîtrise* in Applied Linguistics, 435 hours for a *maîtrise* in Law, 487 hours for a *maîtrise* in Economics, 500 hours for a *maîtrise* in Management Sciences and Science, and 750 hours for a *maîtrise* in Data Processing Applied to Management (official norms for 1979). Table X.4 gives some idea of this disparity to the extent that, in spite of the effort at standardization over the last few years, the correlation between universities' ranks from the point of view of student numbers and universities' ranks from the point of view of resources gives ratios still rather remote from 1.[15] For example, the average cost of one student (not counting plant depreciation) for all the universities is 6900F in 1979, whereas it is 8466F for those universities incorporating a medical education and research unit and 6392F for the others.

Table X.4 Coefficients of correlation between student numbers and resources

	Operating expenditure	State staff	Additional classes
Student numbers for all universities	0.70	0.80	0.62
Student numbers for universities without medical sections	0.71	0.88	0.89
Student numbers for universities including medical sections	0.72	0.86	0.46

Lastly, in so far as concerns autonomy, it is in the process of disappearing almost completely, to the extent that a decree of August 1979 took away most of the universities' prerogatives in selecting teachers.

2.6 *Dislocated higher education*

As can be seen from the above, the history of the evolution of French higher education over the last twenty years cannot be told without taking into account the major role played by the behaviour of the agents in this history. Where I differ, however, from certain sociologists, in particular Boudon,[16] is in refusing to accept the hypothesis of an exclusively endogeneous explanation based on a series of defects of the university system, in particular its institutional inability to control student influxes. A more specific study of the present segmentation of higher education appears, on the contrary, to back up the hypothesis of major external influence, which has been accentuated and legitimated by the authorities. Faced with the resistance of society and the complex reaction of the university system, this influence has led to the destructuring of the university system, which goes hand-in-hand with the destructuring of the production system and is a reflection, at least at the present time, of a marked lack of social cohesion. In fact, higher education is characterized by three clearly segmented spaces.

The first is the 'modernized space', this modernity being defined in relation to the position sought for France in the international division of labour, and characterized by a satisfactory compliance with the cosmopolitan/productivist philosophy. Transposed to the level of the system of values transmitted by higher education, this implies, firstly, acceptance of an elitist view of education (the teachers' viewpoint) and a meritocratic differentiation (the students' viewpoint). Secondly, it implies acceptance of the imported model, in particular the American model characterized by the concepts of efficiency and mobility. Lastly, this implies the acceptance of the technological civilization, with the consequences this entails on the levels of life style and in particular consumption patterns. On the level of social development, the training systems and institutions related to this space are characterized by the acceptance of more extensive vocationalization, intense technical learning, which takes the concrete form of a more rigid structuring of the curricula and great preciseness in allocating degrees, and fundamentally signifies acceptance of the forms of social relationships which go along with technical development. General training in this case becomes a sort of premium for those schools or universities which manage to adapt to the competitive components of the production system. It is within this space that must be located the French *grandes écoles* for Science and Commerce, and some universities. The training courses concerned are those in Engineering, Management, *maîtrises* in Science and Technology, and certain training courses in Economics and Law. The various training courses have increased over the last few years, and even when they were included in universities providing general training, they were provided with a special status so that they might not be contaminated by any reaction which might be apparent.

The second space is the 'space in reaction' against the dominant philosophy. It generally refuses elitism and the students in this space have an antimeritocratic outlook. The ideas put forward are frequently rather sceptical as to the technological civilization, its life style and forms of social relations. In certain disciplines (economics, sociology, etc.), this reaction has taken the form of a powerful neo-Marxist current which has resumed and carried further the overall criticism of the capitalist system of production. This space has virtually no more contacts with the preceding space, and consists, for by far the most part, of Arts courses and partly courses in Economics, Psychology and Sociology. The universities which specialize in these training courses are usually not greatly supported by the authorities and in practice fulfil the function of nurseries of dispute, similar to what is encountered in many developing countries. Fundamentally, these are the institutions which defend French social culture or endeavour to reinvest it by means of a process of production of knowledge which is sometimes more aesthetic than cognitive, as Boudon rightly points out.[17]

The third space will be termed in this chapter 'intermediate or neutral space' to the extent that it covers those training courses which are either more independent of the production system or, by their very nature, less involved in the social debate. In the first group must be ranked those training courses which provide the social system with the members of the professions. These are, undoubtedly, the medical training courses, and, to a lesser extent, legal training. As they are not directly affected by the integration of the French economy into the world production system, they can develop a system of production of knowledge largely based on a social heritage, which does not, moreover, preclude the gradual assimilation of external scientific novelties. So long as they provide their students with adequate job openings in the tertiary sector, they will be little affected by the questioning of inherited values and will have a generally conservative university behaviour (acceptance of elitism, meritocratic behaviour, structured promotion system, etc.). When job openings become more uncertain (i.e. when access to the tertiary sector becomes more difficult) an internal debate develops in the form of the confrontation between the two positions mentioned above (in the case of Law and, to a lesser extent, Medicine at present). In the second group should be placed the pure sciences, which by definition are not easily subject to politicization, and which can accordingly prolong a system of production of knowledge without being too directly subjected to external effects. The point to be emphasized is that these disciplines have greatly suffered in France from the development of the modernized space, which has resulted in a major excess production capacity.

Such is the concrete reality of French higher education, which conforms to the polarized image of the production system. This reality is in fact the essence of what can be transmitted abroad.

3 The Contribution of French Higher Education to the New World Order

An examination of the position of French higher education in the world confirms the working assumption mentioned earlier on. On the one hand, international academic relations evolve as a function of the restructuring of the world economy, which underlines the considerable effect of economic constraints on cultural transfer. At the same time, the administrative framework and content of these relations are strongly marked by the contradiction between the social heritage specific to French culture and external stimuli. This phenomenon leads to the international reproduction of the segmentation of French higher education in its sphere of influence, and forms the hinge pin of all discussions with a view to bringing cultural exports closer into line with development requirements. In the following discussion we shall not take into account the 100,000 students (foreigners without a French government scholarship), who are furthering their studies in France, since these students are directly confronted, like the French students, with the situation outlined above.

3.1 *The pervading feature of relations between higher education and the new world order: the weight of economic constraints*

In France, scientific and technical cultural exchanges are very clearly centred around Europe, North Africa (through the Ministry of Foreign Affairs) and Black Africa (through the Ministry of Co-operation). The general structure of these exchanges has altered over the last ten years, dissemination activities increasing (French high schools, cultural institutes and centres, 'Alliance Française' etc.), cultural and technical co-operation projects declining. With respect to the scholarships available to foreign students in France, there has been a major rise in their number. A more thorough study of Table X.5 shows that North Africa and Black Africa represented in 1978 approximately 5,000 people on long-term missions, or ten times more than all the long-term higher-education missions carried out in the rest of the world. At the level of dissemination and cultural exchanges, as for scholarships, Europe likewise plays a major role. This initial remark highlights, then, the fact that France has maintained strong cultural relationships with its former colonies and its neighbours, these relations being closely related to the importance of the economic relations within this space. However, what is more, is that the alterations in cultural co-operation reflect the features of the new order. In this respect, two phenomena appear significant. Firstly, a study of Table X.5 shows that the structure of cultural intervention alters as a function of the form of economic development chosen, this being very marked in the case of the Maghreb countries, where measures concerning higher education are taking the place of measures concerning secondary education. Having opted for independent development, these countries have gradually acquired the means of providing their own training at the upper levels of the educational pyramid. Quite naturally, their requirements have shifted towards higher education, although they are not yet able to meet these requirements (as in Tunisia in 1979). The second phenomenon is that modifications in the distribution of cultural interventions have closely followed the new orientations of the world economic system. A list of the countries outside of French-speaking North Africa and Black Africa which have received preferential treatment during this period provides convincing proof of this. The countries in question are Mexico, Ecuador, Brazil, Venezuela, Colombia,

Table X.5 Cultural and technical relations. Number of long-term missions. Ministry of Foreign Affairs' scholarships

	Dissemination and cultural exchanges		Cultural and technical co-operation								Scholarships	
			Teachers on co-operation				Technicians on co-operation					
			Total		Higher education		Total		Training institution			
	1969	1978	1969	1978	1969	1978	1969	1978	1969	1978	1969	1978
Europe												
Number	1.377	2.822	104	29	6	18	–	10	1	2	2.205	3.008
%	*24*	*36*	*1*	–	–	*1*	–	–	–	–	*28*	*31*
Near and Middle East												
Number	298	487	283	278	131	77	84	79	23	19	738	1.642
%	*6*	*6*	*2*	*3*	*11*	*5*	*2*	*2*	*3*	*1*	*9*	*17*
North Africa												
Number	2.834	2.211	15.719	9.836	650	1.521	4.301	2.591	543	1.273	1.744	1.699
%	*49*	*29*	*86*	*90*	*51*	*80*	*83*	*87*	*78*	*95*	*22*	*18*
Africa (south of the Sahara)												
Number	131	181	228	247	39	62	94	63	4	14	516	861
%	*2*	*2*	*1*	*2*	*3*	*3*	*2*	*2*	–	*1*	*7*	*9*

Asia and the South Sea Islands												
Number	437	363	800	127	130	61	249	85	60	13	1.095	915
%	*8*	*5*	*4*	*1*	*10*	*3*	*5*	*3*	*9*	*1*	*14*	*10*
North America												
Number	51	870	905	122	130	–	213	48	–	4	579	306
%	*1*	*11*	*5*	*1*	*10*	–	*4*	*2*	–	–	*7*	*3*
Central and South America												
Number	565	810	244	341	193	156	231	106	68	11	1.028	1.154
%	*10*	*10*	*1*	*3*	*15*	*8*	*4*	*4*	*10*	*1*	*13*	*12*
Total												
Number	5.753	7.744	18.283	10.980	1.279	1.895	5.185	2.972	699	1.336	7.906	9.585
%	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*

Source: Ministry of Foreign Affairs. To these figures must be added approx. 2,700 people employed in higher and technical education (1977), employed by the Ministry of Co-operation. This Ministry covers the following countries, which are not included in the above table: Benin, Burundi, Cameroun, Central African Republic, Congo, Ivory Coast, Gabon, Upper Volta, Mauritius, Madagascar, Mali, Mauritania, Niger, Rwanda, Senegal, Chad, Togo and Zaire.

Thailand, Singapore, Indonesia, Nigeria, the Sudan, Syria, Iran, Iraq, Kuwait, Portugal, Greece and Turkey.

3.2 *Manifestations of the contradiction between national social culture and modern technology*

However, the above observation is not enough to provide a thorough understanding of the nature of the transfer in question. What becomes obvious on deeper analysis is that France exports and reproduces its own cultural contradictions.

3.3 *The significance of the complexity of the administrative framework*

Perhaps the most striking confirmation of the working assumption made in this chapter is to be found in the administrative organization governing France's cultural relations with other countries. What is particularly striking is the division of the General Department of Cultural, Scientific and Technical Relations in the Ministry of Foreign Affairs into a department for dissemination and cultural exchanges, a department for cultural and technical co-operation, and a department of scientific affairs. The fact that the dissemination sector is isolated from the other two is a clear manifestation of the fact that the French cultural heritage is exported in the pure state (French high schools, 'Alliances Françaises', etc.), and that this exporting of culture is conceived independently of any concept of co-operation. There is accordingly no question, in this chapter, of reflecting on the means of integrating a cultural heritage, a modern culture in reaction against the dominant philosophy, a technical culture which is usually in transit, and, *a fortiori*, a culture adapted to the aspirations of foreign countries. The separation between dissemination and co-operation confirms, and even aggravates the segmentation pointed out above, the culture exported under this system usually relating to France's traditional cultural heritage. We may note that it is not surprising that this segmentation should be most evident in the Ministry of Foreign Affairs, in view of the weight of tradition in this Ministry. This does not mean, however, that the term co-operation does not also cover an opposition of the same nature. Moreover, at this level, the distinction between cultural co-operation and technical co-operation is also eloquent. However, in order to show this, the nature of these operations must be delved into, since the concept of co-operation suggests more concerted procedures.

3.4 *International academic relations in cultural and technical co-operation*

Table X.6 shows the breakdown by disciplines of co-operation missions in the field of higher education. The first comment to be made concerns the predominant role of the scientific and technical disciplines and the rise in their relative importance over the period. It will be noted that cultural co-operation reproduces, and increases, the tendency to vocationalism observed at the internal level. This can be explained by several factors:

Table X.6 Teaching staff appointed to university higher-education institutions abroad

	Law	Economics	Mathematics	Physics and Chemistry	Biology	Medicine	Others	French, Literature	History and Geography	Other Modern Languages	Philosophy, Psychology, Sociology	Others	Total
1 *Ministry of Foreign Affairs*													
1 January 1970													
Number	117	52	129	270	47	98	–	300	93	68	73	32	1,279
%	*9*	*4*	*10*	*21*	*4*	*8*	–	*23*	*7*	*5*	*6*	*3*	*100*
1 January 1978													
Number	96	127	178	508	246	102	198	304	14	41	57	24	1,895
%	*5*	*7*	*9*	*27*	*13*	*5*	*10*	*16*	*1*	*2*	*3*	*1*	*100*
2 *Ministry of Co-operation*													
1974: %	*9*	*5*	*7*	*19*	*6*	*9*	*12*	*10*	*8*	*4*	*2*	*9*	*100*

(i) Firstly, it seems clear that the developing countries located within the French sphere of influence are demanding more and more technicians and scientists capable of operating the production units (turnkey plants, goods' packages) which they have been supplied with. The cultural sphere accordingly ratifies the economic evolution which has led the industrialized countries to export their production processes and technology.
(ii) Secondly, it is logical that administrative self-reliance should precede technical self-reliance, since in the various developing countries still marked by the colonial structure set up by France, a major part of their own education system is devoted to administrative training (law faculties).
(iii) Moreover, the decline of the pure-literature disciplines at the level of higher education is the result of the endeavour to attain greater cultural independence (particularly in the case of Arab culture).
(iv) Finally, it should be pointed out that the development of the scientific streams goes hand-in-hand with excess production capacity in France. One can accordingly not exclude Kravis' theory of the 'vent of surplus'; according to which there is a certain driving force to export excess intellectual abilities.

The second remark is even more directly related to the points outlined above; the content of the disciplines transmitted is not homogeneous. In all the less cognitive disciplines (Human Sciences, Arts, Economics and even Law), France exports its own academic segmentation. More detailed analysis would show that certain universities have preferential relations with those countries which have opted for a pattern of development complying with the ideological guidelines by which they are governed.

In conclusion on this point, it would accordingly seem that academic relations are governed by three different theoretical mechanisms:

(i) The first mechanism, which appears to be the chief motive force, is the scientific/technical mechanism. Here, France increasingly plays an intermediate role. It sends an increasing number of French scholarship holders to the United States to acquire the dominant technology. These students subsequently disseminate their training in the developing countries. The most striking example is that of managerial training. Through a foundation partly financed by the large companies (the FNEGE: Fondation Nationale pour l'Enseignement de la Gestion), a large number of instructors are retained in the United States and disseminate their knowledge in France and all of the priority countries from the viewpoint of France's international strategy, either directly, or via certain international organizations (in particular, the ILO).
(ii) The second mechanism, which is still powerful, is the mechanism of pure culture, which is in full expansion in the dissemination sector, and in decline in the sector of cultural and technical co-operation. This

activity is still very important in the countries of French-speaking North Africa and Black Africa. France frequently provides teacher training in literature and human sciences on the basis of French curricula. For example, in several countries of Black Africa, there exist higher teacher training colleges in which the basic course is in French literature.

(iii) The third mechanism, finally, is more anarchic, and in fact corresponds to the bilateral relations that have been established here and there by the French universities with their counterparts in the developing countries. Viewed as a whole, this mechanism leads to the exportation either of a specific knowledge based on qualifications acquired by contact with developing countries (e.g. tropical medicine), or of the frequently anatagonistic elements resulting from the keen impact between problematics in certain disciplines. More precisely, one can say that France also exports its higher-education crisis.

Such appears to be the present situation, which should not, however, make us loose sight of the fact that the teaching provided in the various disciplines is of a high academic level.

3.5 *Proposal for a better contribution by French higher education to the new order*

The most profound reflection with a view to improved efficiency in international academic relations is probably that of the Délégation aux relations universitaires internationales (DRUI, Ministry for the Universities).[18] This reflection leads to these relations being conceived in terms of a strategic system, which indicates a concern for dialogue with the foreign partners and extensive decentralization, leaving the power to take initiatives with the universities themselves. In particular, it provides for study groups bringing together the heads of French and foreign institutions, permitting the working out of joint medium-term projects, while the priorities, for their part, will be defined at interministerial meetings. The goal is to bring about a change both in French training systems and in the training systems of the countries concerned, so as to develop a strategy of these relations based on a:

> common understanding and outlook on the problems; pertinent language; adequate information; evolving procedures which preserve all the varied wealth of initiatives; and, strict methods of evaluation in order to correct the course and encourage the most highly motivated.

It is clear that this will lead to better conditions of transfer, on condition that the strategic priorities defined at the interministerial level are not too constrictive. This conception leaves no more room for distinctions between dissemination, cultural co-operation and technical co-operation. Unless the dialogue is conceived on the parallel paths of pure culture and technology, which is absurd unless one wants to increase the social decomposition of the developing countries, the concept of integrated co-operation will inevitably come to the fore.

However, there remains a major contradiction to be reduced before these intentions can become the general reality of France's international academic relations. This contradiction is due, as the entire recent history of French higher education proves, to recentralization and the breakdown of dialogue on the internal level. How could it be possible to set up a mechanism for the international transfer of knowledge based on discussion between different cultures, when on the national level this discussion is stifled in order to favour a particular type of philosophy?

It is clear that the solution will mandatorily involve the general acceptance of a method of production of knowledge by which the dialogue between external stimuli and the cultural heritage specific to each society will be organized. Unless the question is posed in these terms on the internal level, France will always be driven to reproduce on the international level its own academic segmentation, which will be added to the segmentation of the developing countries concerned. In an even wider perspective, measures at the level of higher education should be conceived in conjunction with economic relations based on the same principles. So long as economic relations take place on the same bases as at present, academic measures will be ambiguous. There have been some interesting experiments from this viewpoint at the level of vocational training. In conjunction with integrated development projects decided locally, these experiments prepare the social development of the peoples concerned, and help lend coherency to these projects. It is no doubt possible to extend such measures, but it is probably a pipe dream to hope that they may be generalized.

4 References

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XI Implications of the New International Order for Higher Education in the Arab World

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Abstract The universities and other higher education institutions should perform their responsibilities as the most important institutional mechanism of any society by contributing to the maximum in realizing the comprehensive development in economic, social and ideological dimensions at local, regional and international levels. They should be able to attack the global problems collectively with conviction of achieving the new international order by properly investing in science and technology for the benefit of mankind. They should also promote human solidarity and creative co-operation among all the citizens of the world taking proper account of the changing attitudes and behaviours of the people. They should support and promote programmes for achieving equality of educational opportunity. In that sense, post-graduate studies and scientific research should be given top priority in the developing countries.

Wherever possible, regional languages (particularly in Arab states) could be introduced as a medium of instruction to help achieve socialization and also maintain cultural identity.

All facets of higher education should be oriented in such a manner that countries can be self-reliant in their socio-economic development. University programmes should be related with the community needs, applied research oriented towards national development should be emphasized, inter-country and inter-university co-operation in research should be augmented, new teaching/learning strategies to make the students 'educable' rather than 'educated' should be adopted in order that they might be self-reliant. 'Management' and administration should be emphasized as training programmes. Life-long education should be incorporated in order to ensure continuity and mobility of self-education. The concept of 'development' should be widened from material aspects alone to cultural and ideological aspects and the universities should play the key role in disseminating the importance of this concept.

1 Introduction

University education forms the cornerstone of higher education in the Arab area with respect to volume, quality, and capacity for development and self-advancement. There is a new tendency to gather all institutions of higher education under the umbrella of Arab universities. Many of the technical and polytechnical higher institutes in Egypt, Iraq and Saudi-Arabia, for example, have become affiliated with existing universities, or have emerged to form technological Universities.

Any earnest study of higher education in the Arab area should therefore focus on university education since it encompasses most higher education provisions, goals and objectives. Universities are the only institutions in the Arab area where higher studies are offered and the only institutional structures legally allowed to grant higher degrees: diplomas in the technical, applied and professional fields, Masters and PhDs in the academic fields.

In addition, Arab communities – in their constant endeavour to establish institutions of higher education for economic and social development – prefer to establish universities in light of the fact that universities no longer confine themselves to academic studies. Presently, the common tendency is for universities to offer, applied and technical as well as academic studies. Moreover, quite a number of universities are concerned with very specialized applied and technical higher studies (these can include studies below the university and higher studies level).

Hence, Arab universities, by virtue of their distinguished position in the Arab community, their relevance, their special characteristics and potentials, are able to confront and absorb the requirements of the New International Economic Order (NIEO) and to shoulder its responsibilities. This study therefore concentrates exclusively on university education in the Arab area. It is distinguished from other channels of higher education by its greatest effect on all economic, social, scientific and cultural dimensions within the Arab world. Internationalism lies in the very idea of those universities and they, in turn, are efficient enough to cope with and to accomplish the requirements of this NIEO.

2 Implications of the NIEO

The NIEO aims at maintaining peace, prosperity and progress for all nations. All communities, however different their ideological trends, their economic and social doctrines, look forward with great hope to the advancement of progress everywhere in our world, the fulfilment of all the needs of those who are deprived, the elimination of poverty, retardation, injustice and constraint, and ultimately the attainment of peace and stability all over the world.

The interests of all nations have come to be inter-related more than ever before. No community can live in isolation from other communities. Realization of progress depends, in one way or another, on conditions in other communities and many of the crucial contemporary problems have acquired a common global attribute in the sense that those problems threaten the interests of all nations.

Our world is facing various problems; some so aggravated and so serious that they endanger security and peace.

The implications of this NIEO could be summarized in the following six points:

1 Realization of comprehensive development in all its economic, social, scientific and ideological dimensions on local, regional and international levels. Every community should pay attention to local development, but this is only one side of the coin because national and international interests should converge. Hence, great importance should be given to the development and progress of affairs at the international level; all communities should join in this effort. As far as development is concerned, all its economic, social and ideological aspects should be dealt with in harmony. Efforts to achieve a better balance should take into account that this is necessary in order to avoid any split which could lead to conflict and dispute.

2 Mutual and sincere efforts should be focused on the solution of global problems. These solutions should be based on reliable scientific and well-studied approaches in order to avoid conflicts. Progress in science and technology should be effectively invested in that concern.

3 Humane solidarity and creative co-operation should be developed between all. Through many experiences humanity has created great civilizations; each has its characteristics and merits. Humanity should also be able to solve global problems and make progress through co-ordination and co-operation of those civilizations. There will always be modifications in attitudes and behaviour but these ought to be adopted with reasonable selectivity on the basis of merit and adhering to those basic elements that have been tested by hundreds and even thousands of years experience.

4 A unified sense of responsibility towards the problems facing people anywhere should be fostered without distinction as to race, religious, social or geographic boundaries.

5 Educating succeeding generations (the future decision-makers) is the principal guarantee to prepare them to be competent in their responsibilities towards humanity, to allow them to take the adequate decision in due time and to demonstrate the superiority of their behaviour. The programme should be inclusive and integrated taking in consideration the man's brain, soul, consciousness and body, otherwise it cannot possibly have impact.

6 Maintenance of social justice and application of the equality of opportunities principle especially among the succeeding generations should be regarded as the most essential support to the NIEO.

Those main principles are of far reaching importance to the maintenance of international peace and stability because they reflect in the elimination of disquietude and confronting pressures facing the youth. Thus they are placed in the reliable healthy climate that could help them to make the optimum contribution and give over devotionally. There is no doubt that social justice is the only guarantee to promote social security.

That the largest burden of the NIEO implications, as have been discussed before, lies on the very shoulders of universities and other higher education institutions is no longer a matter of deliberation. Universities, *per se*, and similar other institutions are the most important structures able to manage and achieve those implications. Institutions of higher education in our contemporary world are responsible for contributing to the optimum in maintaining development and progress, study the crucial life problems and formulate their reliable scientific solutions, establish the humane solidarity, prepare the succeeding generations, within an inclusive and integrated programme, in order to qualify them to carry on with and animate the university premises of philosophy, values and goals and define the implications, subsistences and values of social justice.

Actually mankind's prospects depend – to a larger extent – upon the range of success that universities and other institutions of higher education can fulfill in carrying on with so great a mission to bring up the total and complete person and in contributing effectively to the implications of the NIEO in the way that could realize its progress, success and constancy.

3 Development of Higher Education in the Arab area after World War II

3.1 *About quantitative growth*

The Arab area has experienced – after World War II – great overall evolution in the field of education, in higher education in particular. The number of Arab universities has increased from twelve in 1945/46 to fifty-two in 1977/78; total undergraduate enrolment increased from 13,000 to 750,000. The total student enrolment in graduate studies level[1] also increased from 4,500 to about 6,000 students.

The number of institutes of higher education (other than universities) has also increased steadily. Their curricula have been modified to match the conditions and ambitious development plans in the Arab countries and also to align them with the international educational framework.

The curricula include disciplines that had not existed in the Arab institutions of higher education before, such as Hotel Management, Tourism, Physical Education, Acting, Music, Cinema and Theatre Arts, Navigation, Management and Administration, Planning, Secretarial Work, Co-operation etc. The study duration in those institutes of higher education varies from two to four academic years. Quite a number of the four-year institutes have recently been affiliated with existing universities or have merged to form technological universities specializing in applied studies. The total number of students enrolled in those institutes has increased during the same period (1945/6-1977/8) from 50,000 to about 120,000 students.

All indications are that this quantitative expansion in higher education in the Arab area will continue, influenced by the progress which has occurred in the region. This expansion is also in response to the needs of succeeding generations of Arabs increasing year after year and to the need for development and maintenance of progress all over the Arab area. This expansion will certainly be within an International Order where there is no room for development and progress or even for survival unless it can catch up with the speed of the accelerating development of science and technology.

The total population in the Arab area has increased from about 70 million in 1946 to more than 150 million in 1976, of which 42 per cent approximately have not exceeded the age of 15 and 50 per cent are under 20 years old. This demographic factor has led to increasing demand on education in general and higher education in particular. It is necessary, therefore, to accelerate the expansion of higher education in the Arab area.

As regards the realization of development and the maintenance of progress, Arab countries have planned ambitious development plans which aim at the evolution of its economic and social activities both rapidly and effectively. Large funds have already been approved to finance those plans and problems for the programming and implementation of the plans have also been taken into account. Estimated investments in Arab countries for those development plans during the coming ten years will reach from $1,400 to $1,700 billion in current prices. Indicates show that those investments will continuously increase in order to match with the Arab nations' hopes in progress and prosperity. Arab countries anticipate that the implementation of those development plans will result in the increase of national income by 15-20 per cent annually. These development plans and programmes require, of course, technicians and highly qualified manpower as well as adequate research work. These factors are the most important components in the implementation of plans which have to unite with a scientific technological revolution. Hence, expansion in university education will undoubtedly impose itself in the days to come in order that the Arab area could meet the development requirements.

3.2 *About qualitative growth*

The expansion of higher education is no longer a matter merely of adding more students or other materialistic possibilities to a stagnant system of education. Unfortunately few innovations or improvements have taken place in Arab universities and other institutions of higher education concerning curricula, kinds and levels of study and teaching methods and procedures:

(a) *Curricula.* Arab universities are keen to update their teaching/learning programmes and curricula from time to time. The 'explosion' of knowledge has continually pushed all Arab institutions of higher education towards the evolution of their curricula otherwise the educational process stagnates and remains backward. However the curricula in some Arab institutions of higher education are still conventional and most are theoretically oriented.

(b) *Kinds of studies.* Some Arab countries have established new types of universities (i.e. technological universities whose basic objective is the promotion of applied studies and research), training of technicians and experts needed for development plans especially in industries. Some Arab countries have established quite a number of technical and higher institutes for polytechnical and applied arts. Arab countries have also paid attention to education in fine arts. University faculties and specialized institutes of higher education on equal status with traditional universities have recently been established to look after those arts, develop them and link them with their origins and folkloric roots and traditions. Women's education has also been catered for in Arab institutions of higher education as a result of the increasing demand for such education. Women-student enrolment in the Egyptian universities, for example, tends to be one-third of the total number of students enrolled in those universities. Al-Azhar University at Cairo and Saudi-Arabian and Kuwait universities are however exceptions. These universities also have established, for women-students, faculties on equal status with other university faculties and on the same level and kind of studies. In addition, a number of faculties and institutes of higher education have been lately established in some Arab countries where specialized studies relevant specifically to women-students are given (i.e. Nursery, Home Economics, Physical Education, etc.).

(c) *Teaching methods and media of education.* As regards teaching methods the Arab universities and institutes of higher education, have remained far behind from their counterparts in developed countries. The majority of Arab universities and institutes of higher education still follow the conventional teaching methods and means and still depend basically upon the usual media of education. An external student system has been adopted by some Arab universities in order to provide more access to higher education, and take steps in training personnel qualified for development requirements.

(d) *Post-graduate higher studies.* Post-graduate higher studies in the majority of Arab universities are still within narrow limits. Arab universities which have limited post-graduate higher studies or those which do not have such studies send their undergraduates to other universities for as long as necessary for their training. It is almost true that some expansion had recently occurred in the domain of post-graduate higher studies in some Arab universities with the aim of turning out highly competent personnel in different fields of specialization, on the one hand, and the realization of self-reliance in respect of teaching staff, on the other hand. It is also true that the staff/student ratio in the majority of Arab universities is still far below the international rates. Certainly, this problem is greatly annoying the Arab universities especially if we add to it that training level is also far below. This is a big obstacle for the Arab universities in contributing to the establishment of the NIEO.

(e) *Scientific research.* Research work in Arab universities has comparatively been improved after the World War II, both in terms of quality and in terms of quantity. But, this improvement is still so limited that the research work going on in Arab universities could not yet match up with development requirements within the framework of the NIEO. Most of the on-going research work in Arab universities is rigorously academic. Therefore, it does not serve the development issues because it is not done in accordance with the need which may be related to the general policy of development, neither is it done as a teamwork. It is well known that the highly esteemed research work in our contemporary world is that which tackles the problems exclusively and integrally in a teamwork system. Besides, the available facilities necessary for research work are extremely limited. Co-operation and co-ordination on the local, regional and international levels are still limited as far as research work is concerned. This concern should be in the forefront of the pre-occupations of the university community and of the total human community and should receive the high priority, which its urgency demands, among all the concentrated efforts for establishing the NIEO and ensuring its success.

3.3 *Organization and administration*

Arab countries have also extended their concern to the administration of higher education in all its facets: planning, management of the higher education institutions, organization of their infrastructures and formation of teaching methods, programmes, and curricula.

Some Arab countries constituted supreme councils to draw up the policies of university and higher education, put its plans on the individual country level in such a way as to be able to serve the development needs as rapidly and efficiently as possible.

Laws, byelaws and other institutional organizations, in the majority of Arab universities, have been revised and geared in order to realize university autonomy both in their administrative and financial affairs and in the scientific and academic activities. Thus, Arab universities have the full opportunity to work in a complete and healthy climate of independence.

Some universities set up their infrastructures and programmes on the basis of interdisciplinary departments instead of the traditional faculty system so as to raise the efficiency of the educational process both from the teaching/learning point of view and from the economic point of view in order that they may make the best possible use of the available experiences and resources.

As far as the university administration is concerned, some Arab universities have updated their administrative machinery. They equipped themselves with new units to meet the increasing demand and expanded the volume of their activities and established new top-management posts to have more than one

Deputy-President in one university. This administrative re-organization resulted in the utilization of more experience and more information prior to decision-making without the necessary communication, co-operation, co-ordination and integration the whole machinery could not possibly have any impact.

Some Arab universities constituted new university boards to encourage co-ordination and integration among different faculties and departments either in the field of postgraduate higher studies and research or in the field of undergraduate programmes.

Some Arab universities also adopted new systems in students admission and enrolment, in the management of its administrative and financial work and in the information, statistics, data collection, their storage and retrieval. Some of this work is partly automated and the march towards full automation is not beyond the abilities of many Arab universities.

In view of the increasing burdens placed on the shoulders of Arab institutions of higher education due to the expansion of their clientele and activities it became very necessary for them to give great care to planning and administration and also to co-operation and co-ordination in order to achieve optimum performance of their units.

3.4 *Education systems*

Education systems in the Arab institutions of higher education have also been changed considerably. This change includes the duration of study, the volume of educational programmes in each period and student evaluation and examination systems.

Many Arab universities and institutes of higher education adopted new teaching methods (i.e. credit hour system). Some others chose the semester system, a third group divided the academic year into two terms and the rest stick to the complete academic year: a system which is applied in the majority of Egyptian universities.

3.5 *Students welfare*

Considerable improvements both in quantity and in quality have taken place as regards the students' cultural, social, athletic and other recreational activities. Expenditure on those activities has exceeded, in some Arab universities, the expenditure on the educational process itself.

This tendency is actually a response to the world community's continuous appeal for a full application of equal opportunities in respect of social justice and abolishing class contradictions and oppositions. Those revolutionary ideologies are the most essential implications of the NIEO because they aim at eliminating disquietudes and annoyances among youth and ensuring social peace.

3.6 *Community welfare*

Arab institutions of higher education esteem, more than ever before, their obligations towards the world development, peace and progress. However, they also feel that attempts in meeting such obligations should begin with their community. In the light of these basic principles the contribution of Arab universities and institutes of higher education in community welfare forms a very important part of their activities. The majority of those institutions have established public service centres and give greater care to the applied research work in maintenance of development issues. But, that role of Arab universities and institutes of higher education is considerably limited owing to the fact that these institutions lack the organization that could effectively co-ordinate and integrate those sort of activities among the institutions themselves, on the one hand, and between them and the organizations working with economic activities, on the other. Besides, Arab institutions of higher education experience a serious shortage of facilities necessary for development of such activities in the perspective of the NIEO.

4 Perspectives

No doubt that the Arab area is full of different possibilities necessary for evolution and development. It possesses the capacities and resources that could set it free to maintain and accelerate progress, provided that those possibilities be used effectively. This matter should be put under the microscope of study and research in order to deal rationally with continuous change, minimize the disrupting effect of unforeseen developments and maximize the opportunities of interaction, co-operation and co-ordination.

Many Arab governments, as well as regional organizations such as the Arab League Organization for Education, Culture and Science (ALESCO), the Association of Arab Universities (AARU) and other institutions responsible for development plans in the Arab area are giving an emphasis in promoting studies and research in this area. These organizations give priority to the issues of co-ordination and integration among different institutions, both in the scientific, cultural and educational activities, and from the economic point of view. All these endeavours aim basically to realize evolution and development within the framework of the NIEO.

5 The Potentials of Higher Education in the Arab Area

5.1 *Confronting the challenges of the NIEO*

There are fifty-two Arab universities; all of which are governmental institutions; twelve in Egypt, six each in Iraq and Saudi Arabia, five in the Sudan, three each in Syria, Algeria and Morocco and two in the occupied territories of Palestine (the

University of Bir-Zeit and Al-Nagah National University, both on Nablus in the West Bank of Jordan).

Besides, there is a limited number of non-governmental universities: the two American universities at Cairo and Beirut. Also, there are quite a number of specialized and technical institutes of higher education; the majority of which are governmental. The duration of study in these institutes is four years. They are on equal status with traditional universities both in the teaching/learning process and graduation. However, the duration of study in some institutes is two years only; a period during which the students could be qualified for performing same activities. The certificates they grant are not of equal status with traditional universities and the four year institutes.

The number of students enrolled in governmental Arab universities in 1977/8 was about 770,000 students, of whom 400,000 were enrolled in the Egyptian universities alone; 70,000 in the Iraqi universities and 75,000 in Syrian universities. The percentage of the enrolled students in those universities to the total student population in all Arab universities is 52 per cent, 9 per cent and 9.5 per cent respectively. The number of students in the Arab institutes of higher education in 1977/8 was 220,000 students, of whom 100,000 are enrolled in the Egyptian institutes alone.

The proportion of student population enrolled in the Arab institutions of higher education to the total population in the Arab area varies remarkably from one country to another according to the differences in conditions prevailing in the country concerned and also according to the economic and social evolution that the country has attained. These proportions (per 1,000) are: 12, 7.5, 13 in Egypt, Iraq and Syria respectively.

The estimated number of graduates who work in different workplaces in the Arab area is 2 million. But, in spite of the continuing growth in the volume of higher education in the Arab area, one can say that it is still beneath the quantitative and qualitative level necessary to confront the challenges of the NIEO. In order to be capable enough to meet those challenges, higher education in the Arab area should expand its facilities in order to attain, at least, an average percentage of 10 per cent, which counts and 16 million of the total existing Arab population. In the meantime, steps should be taken to accelerate the expansion to place 30 million students in the year 2000.

As has been mentioned before in this study, women's education in the Arab area has seen considerable improvements. This tendency is actually an important factor in the NIEO implications because women form more than half of the Arab community and so it is very essential for development that women should contribute to the optimum. However, this progress of women's education in the Arab area is still unsatisfactory. There is great need for more persistent endeavours than what have been devoted before, because the number of highly qualified women in the Arab area is comparatively limited. In addition women students should be oriented towards the pattern of education that fits more with their physical and behavioural characteristics in order that they may find more suitable working conditions; to enable them to be more productive, effective and beneficial to the society.

Until recent times, many Arab institutions of higher education were entirely or mainly centred in the capital and big metropolitan cities. In Cairo there are four government universities (240,000 student enrolments, 33 per cent of the total student population in all Arab universities), one non-government university (the American university at Cairo) and a number of institutes of higher education that contain some thousands of students. This might be ascribed to the fact that Cairo is not only the capital of the biggest country in the Arab area, also in Africa and even in the whole Middle East, but it is also the lighthouse and centre of hope of all the Arabs. However, the implications of the NIEO which aim at the realization of development and maintenance of progress impose that higher education should extend its arms everywhere in the Arab area, not to be concentrated in capitals and metropolitan cities alone.

The size of the student community in Arab universities differs from one university to the other. Number of undergraduates enrolled in some universities varies between 2,000 and 6,000 students in the universities of Libya, Saudi-Arabia, Jordan, Kuwait, Qatar and Yemen, while it is in some other universities -- mainly Egyptian and some Syrian and Iraqi universities – between 30,000 and 100,000 students.

Also, the amount of available human or physical resources differs considerably from one Arab university to the other. The ratio of facilities available to some Arab universities is nearly as equal as the high ratios available to the majority of universities in advanced countries. For example, the average staff/student ratio in the universities of Kuwait, Saudi-Arabia, Libya and Yemen is 1:10 whilst it is 1:30-80 in the universities of Egypt, Syria and Iraq. It is a bare truth that the rapidly increasing growth in higher education in the Arab area is accompanied by a remarkable decrease in the provision of equipments and other facilities. The Arab countries have to try their best to meet this severe shortage by reviewing the higher education plans, systems and methods on a basis that would undoubtedly lead to devoting more endeavour and more care to the quantitative dimensions of its development to be able to respond to the implications of NIEO.

The majority of the Arab universities suffer from the proportionally small volume of post-graduate higher studies. The number of post-graduates, according to the statistics in 1976/77, was 6,000 students. This number forms only 7 per cent of the total number of students enrolled in all Arab universities. However, this percentage reaches, in some old universities to 12 per cent while in many universities of advanced countries this percentage is between 25 and 50 per cent. Besides, the training level is far below the level available in the advanced countries. The meagre volume of post-graduate higher studies in universities does not actually match with the challenges of the NIEO.

Variations in the cost structure of higher education are considerably higher from one Arab country to the other. This is basically owing to the wide differences in the social and economic standards among Arab countries, on the one hand, and to the special conditions prevailing in each university, on the other. For example, the annual average cost per capita is $300 in the Egyptian faculties dealing with humanities and social sciences and $600 in the faculties of science and technology whilst it is $3,000 and $6,900 in the university of Kuwait. This variation reflects, in fact, the enormous possibilities in some Arab universities, as well as the meagre resources available for some other universities.

Education in the Arab countries – with the exception of very few universities – is free of charge. Besides, Arab countries allocate comparatively large funds for the students' accommodation, medical care, rewards, loans, recreational activities, etc. The recurring expenditures of those activities may exceed the funds allocated for the educational process itself.

Social justice requires that education as such and higher education in particular should be widespread in the Arab area, so as to create the favourable climate for the guarantee of equal opportunities and the realization of economic and social development of the whole area.

6 Role of Higher Education in the Realization of Economic and Social Development in the Arab Area

6.1 *The domain of social development*

6.1.1 Achievements of higher education in the Arab area in the domain of social development.

The concepts of social justice and equal opportunities principles that have been highly flagged all over the world, especially after the World War II have resulted in the application, in the Arab area, of the 'democracy of education' doctrine. This could be summarized as follows:

1 The availability of higher education as a fundamental human right to as many as possible of the succeeding generations without any lines of demarcation except those relating to educational capacities.
2 The distribution of higher education institutions in the rural as well as in the urban areas.
3 Higher education should be free of charge.
4 The participation of students in university administration. The inescapable differences in the application of that rule depend on the political and social conditions in the country concerned.

It is quite true that higher education, in the Arab society, has played an important role in the realization of cultural and social development in that society. Most important results in that respect could be summarized in the following:

1 Evolution of the intellectual movement and development of scientific behaviour and rational actions. Actually institutions of higher education in the Arab area helped their communities to match with comprehensive scientific-technological revolution and created for those communities the healthy climate to make the utmost possible use of the results of the rapid scientific progress.
2 Increasing access to and appreciation of the mass-media communication.
3 Raising the standards of living especially among the intellectual citizens. No doubt that higher education has considerably resulted in the increasing provision of public services: transportation, means of communications, housing, medical care, social welfare, tourism, athletic and other recreational activities, etc. Generally speaking, it is noticed that the standard of living in the regions where higher education had widely spread has increased in a more remarkable degree than in the regions deprived totally or even partially of that sort of education.
4 Decreasing rates of migration from the provinces and rural areas to the capital and metropolitan cities. Actually, the rural-to-urban migrations are still going on in no small proportions, but they have decreased in comparison to the proportions of migrations ever before. Some regions, especially those where institutions of higher education were established have come to be attracting areas, as in the case of Egypt, Iraq, Syria and Saudi-Arabia. On the other hand, immigrations of Arab scientists and intellectuals to the foreign countries, especially to the other Arab countries, to Europe and to America, have increased.
5 It is known that an average growth rate of Arab population is 3.24 per cent; which is nearly one of the highest rates in the world. Higher education has also resulted in decreasing the rate of growth among the intellectuals and university graduates, but unfortunately it has a limited effect to other groups of people, owing to the lack of higher education and to the illiteracy in the Arab area.
6 The per capita average level of consumption is increasing in general, but the expansion of higher education has had its effect on the change of consumption patterns in the Arab area particularly in luxurious commodities and public services.

For example the average consumption per capita of petroleum, electricity and water has lately increased in the Arab area in general, but the rates of increase in the regions where education as such, and higher education in particular are widespread are comparatively higher.

7 Higher education paved the way to progress for the succeeding generation and

gave them the chance to attain higher social levels. It is remarkable that progress is in direct proportion with the expansion of higher education.

There is no doubt that these social changes which recently took place in the Arab area were not the direct effect of higher education alone. The behaviour pattern of social groups is not rigid, but is always undergoing constant change. The radical changes in the Arab society are due to various factors; one of which is higher education.

6.1.2 Most important steps for the promotion of social development in the Arab area

The realization of social development in the Arab area with a higher degree of success and efficiency capable to match with the NIEO implications requires the achievement of various steps, most important of which are:

1 The improvement in cultural and intellectual level everywhere in the Arab area. It is well known that the cultural and intellectual level in the capitals and big metropolitan cities is considerably higher than in the remote regions. Hence, giving equal opportunities to the succeeding generation in higher education requires a strong push to raise the cultural and intellectual level of the inhabitants of provinces in order to enable them to have the access to higher education on equal footing with their fellow creatures in the capitals and big metropolitan cities.

2 The economic activities of the different Arab regions should, in general, be developed and resources mobilized in such a way that graduates could find the reliable productive work which would result in raising the national output, on the one hand and the individual's income, on the other. The capabilities of all the social classes should enable them to be educated in order to be more able to develop both their scientific and practical capacities.

3 The forms, patterns and levels of higher education in the Arab area should be diversified in the light of the economic conditions and the special characteristics and attributes prevailing in the region concerned. Higher education policies and programmes should be forged in a mould that could realize the development of the students' practical capacity, the application of advanced productive arts and the most beneficial use of modern technology.

Actually until now most of the higher education policies and programmes in the Arab area are conventional, and thus they require a great deal of amendments and improvements in order to cope with the overall development needs.

4 Adopting new methods and new patterns of higher education that could permit the student to combine work with study. This enriches the intellectual and practical capacities. Fruitful patterns in this respect are: the sandwich course system, the Open University, etc. Every Arab country might adopt what is relevant to its own conditions.

5 Employment policies should be reviewed and should undergo various radical changes. Performance appraisal, incentives and upgradings should all be objective.

The administrative infrastructure should be reorganized especially as regards job-description, reliable performance appraisal and the direct linkage of salaries and other incentives with production and the achievement of the work objectives.

6.2 *Manpower training and development*

6.2.1 The achievements of higher education in the Arab area in the field of manpower training and development

Higher education has been seen primarily as professional training with a major emphasis on preparation for higher professions.

The endeavours devoted by the Arab institutions of higher education in this respect, however large, sincere and constructive they are, had not hit the mark yet – either in terms of quantity or in terms of quality – the production of the high – level manpower necessary to encounter the challenges of the NIEO is very limited. That led to the existing problems in the manpower situation in the Arab area. In addition the distribution of manpower is unbalanced. All those factors have contributed to the slow growth of the economy.

In the absence of accurate up-to-date statistics about the highly qualified technical graduates who are already working with different activities in the Arab area, it is inescapable that one should take for granted the available data. This shows that their number in 1978 is about 2 million which equals 1.25 per cent of the total Arab population (160 million), whilst the percentage in the advanced countries varies between 7 per cent and 12 per cent. The existing data also indicate that this number of high-level manpower is distributed, by field of specialization, as follows:

1,200,000	graduated in different fields and work in the field of education	60 per cent
200,000	engineers	10 per cent
100,000	physicians	5 per cent
500,000	working with different activities: law, accounting, pharmacy, agriculture, etc.	25 per cent

It is obvious that this number, in comparison with the total Arab population is considerably lower and far beneath the high-level manpower needed for the economic and social development.

More than 50 per cent of this high-level manpower are graduates in humanistic and theoretical fields.

The available data also indicates that high-level manpower existing in the Arab area are inequitably distributed among the different Arab countries. In

Egypt, for example, where the population is 27 per cent of the total Arab population, there is 50 per cent of the high-level manpower. The data also indicates that the majority of higher education graduates inhabit and work in the big cities while rural areas are in great need of their endeavours and experiences. For example, the physician/population ratio in rural areas is 1:10,000 while its average in the Arab area as a whole, is 1:3,000.

6.2.2 Most important steps necessary for manpower-oriented training in the Arab area

Arab governments are putting great effort in improving the system of higher education in terms of quantity and quality to provide the high-level manpower necessary for the economic and social development. They are providing higher education free of charge, to everybody on the basis of his/her intellectual capacities only. They are providing it with as much variety as possible, diversifying its courses in the light of the actual needs of the Arab area. For example, each of Egypt, Iraq and Saudi-Arabia had established a technological university.

However, there is still much to be done in the process of the training and orientation of high-level manpower necessary to cope with the challenges of the NIEO.

The most important steps which had to be taken in that context could be summarized as follows:

1 The diversification of studies, courses and fields of specialization in such a way as to meet the actual work requirements. It is the responsibility of higher education authorities to do their best to attract the students by all means to the most needed fields of specialization. For example, considerable chances are available in the sectors of banking, insurance, modern statistics, cost accounting, storage management, tourism, hotel management, transportation and communications, librarianship and archives, translation, education and big sector of industrial engineering, petroleum, metallurgy, agricultural engineering and land reform.

2 The expansion of practical, applied and technical studies. This expansion should be linked with the overall review of curricula, performance methods and other issues of the educational programme in order that higher education may be able to supply the high-level manpower needed. Field training, increase in the number of practical and applied courses in proportion to theoretical courses are important elements.

3 Expansion of the practical and applied studies does not necessarily mean neglecting the theoretical studies. The Arab community is in great need of both. Graduates in theoretical studies are needed in such fields as librarianship, documentation and archives, education, languages, translation, business administration, cost accounting, archaeology, storage management, marketing etc. Actually Arab society is in need of a balanced high-level manpower structure.

4 The constant availability of all the facilities necessary for the efficient mobility of higher education is very important. Modern laboratories and workshops are essential. Arab governments should not hesitate to provide higher education with whatever facilities are needed to realize its goals.

5 Strong bridges of co-operation should be built between the institutions of higher education, on the one side, and the workplaces and economic activities, on the other side, in such a way as to realize the exchange of experience and the flow of information. It is quite beneficial, in that context, that members of the teaching staff in Arab universities and the institutes of higher education work as consultants in the different economic fields relevant to their fields of specialization and experts and technicians working in different industries contribute to the educational process by giving their experiences.

6 Authorities concerned should look to continuing education as a guarantee to the development of capacities and the means to raising the performance of manpower.

7 Higher education systems should have the flexibility in order to give its students the diversified knowledge of the different sciences through an interdisciplinary approach. This flexibility would allow for meeting the changing needs of the society.

8 Only because higher education institutions have been seen primarily as professional training institutions, Arab universities should not however confine themselves to high-level manpower training. These universities, especially the provincial ones, should contribute directly to raising standards of other lower levels of manpower (i.e. nurses, technicians responsible for repairs and maintenance work, junior administrators, craftsmen, foremen etc.), so that the gaps in the manpower structure, at all levels, could be filled. Many Arab universities could exploit their available facilities in organizing special extension programmes for such services.

9 Improvement of the production sector and the increase in different economic activities in co-ordination with educational development in general and university education development in particular could employ the graduates in productive activities in larger numbers and reduce the difficulties resulting from the unbalanced 'supply and demand' and avoid the different forms of disguised unemployment.

10 More effective co-ordination and integration among the Arab countries in different scientific and economic fields would reduce the problems in high-level manpower training and their balanced distribution among these countries. Regional organizations can play a fruitful and constructive role in that respect.

6.3 *National economic development*

6.3.1 Role of higher education in the national economic development in the Arab area

Since World War II, Arab countries have established many new universities and institutes of higher education and have also supported the already existing ones in order that the system of Arab higher education be able to fulfill its essential role in community development through the transmission and development of knowledge. However, in spite of these efforts the achievements in this respect could not be considered sufficient to meet with the challenges of the NIEO.

One notices, however, the increase in the GNP (even if one excludes the contribution of the Petroleum sector) in the latest years. However limited this increase may be, it is, a result of a variety of reasons; the most important of which is the expansion of education in general and higher education in particular. It is very difficult to define the role that higher education had played in the realization of economic development in the Arab area but all the indicators ensure the fact that this sort of education had had an important role in maintaining in one way or the other the extent of progress achieved in the Arab area after the World War II.

As regards high-level manpower the institutions of higher education in the Arab area – as has been mentioned before – have attained a considerable degree of success, especially in quantitative terms.

Arab institutions of higher education have also given support to the field of economic activities in order to strengthen its productive capacities. They have also contributed to the discovery of new resources available in the Arab area.

A remarkable number of studies and research in these institutions had been oriented towards the exploration and optimum use of resources.

6.3.2 Steps for the realization of general economic development in the Arab area

Arab institutions of higher education could certainly play a more effective role in the development of GNP in the Arab area, to meet with the challenges of the NIEO. The tasks could include the following:

1 The establishment of relevant institutional framework necessary to link them with their communities, especially with the workplaces and economic organizations in those communities. University laboratories, workshops, farms, hospitals and other faculties should be put to the service of the community concerned. Besides, the institutions of higher education should do their best to develop productive activities and should adopt a problem-solving approach. In turn, the economic organizations should provide the field work facilities for research in Arab universities.

2 Applied research work in Arab universities should be in the service of development issues. The achievement of this policy requires a survey of the development issues and the consequent problems, classifying them and listing them according to priorities. The Arab universities should be involved in studying this programme in co-operation with the economic organizations concerned.

It is useful to put down a national plan for applied research which would basically aim at serving the development causes in the Arab area. Priority should be given to research work in the fields of Petroleum industries and petrochemicals, solar energy, desert cultivation, exploitation of sea wealths, generating energy from new resources other than the traditional ones, etc.

3 Co-operation, integration and co-ordination among Arab universities and other research centres in the Arab area should be taken into consideration in order to realize the objectives and to achieve the optimum use of available resources.

4 Post-graduate studies in the Arab universities should be expanded, and the level of training should be raised.

5 Further development of higher education in the Arab area should be in line with recent trends in teaching/learning methods on a basis that could realize the ultimate goal of building up the student personality (in addition to the subject specialization) study (i.e. developing in him creative, self-initiating and self-expression capacities, encouraging in him the appreciation of self-education, ensuring that he is capable to confront new problems and to seek for their solutions in a scientific and logical way of thinking and cultivate in his heart the importance of co-operation and team-work in scientific and applied research activities).

6 Arab universities should give greater emphasis on the advanced studies in administration in both theoretical and practical aspects because of its importance in economic development. In Arab countries the inefficiency in administration creates the biggest bottleneck in the way of economic progress and growth.

7 Lastly, Arab institutions of higher education should encourage continuing education as a means to raise the level of performance at all levels. Since flexible methods are needed for life-long education, coherence should be given to the various elements of the educational system in general and higher education in particular in order to ensure continuity of self-education.

7 Role of The Institutions of Higher Education in the Maintenance of Human Solidarity and Building Up The 'Whole Man'

7.1 *Higher education and culture: the idea of the 'whole man'*

There is at the present time in our society a much higher propensity than ever before to the maintenance of human solidarity and to moulding the succeeding generations in the highest level of value orientation in order to fit the requirements of the NIEO, as had been stated earlier in this chapter. No doubt that one of the fundamental functions, even duties of the institutions of higher education is to accent its initiative role in this context.

Thus, Arab higher education institutions are responsible to initiate a broad cultural criteria in order to originate and disseminate ideals, theological and spiritual principles and other cultural values. They should be the creative centres of culture, knowledge and research as well as the transmitting media of those values through insistent endeavour to cultivate them in the community in general and in the student's soul and brain in particular.

The duty of building up the 'whole man' should go in parallel with the teaching learning function, in such a way that the second face of the coin be for the benefit of the first. Arab institutions of higher education are responsible for placing emphasis on building up the integral man, arming him with knowledge, spiritual and conscientious values necessary to keep his body healthy in order to equip him with a mentality and moral character that permit him to sharpen sensibility, to quicken perceptivity and to deepen sympathy. Providing the student with the capacity to study, analyse and do research work alone may create in him the mankind only, but if we add to this the moral aspects of education we then cultivate in his soul and his conscience the self-identification which certainly evokes in him the human being who is full of loyalty and dedication to God and who has enough bonds that bind him to the larger human society.

It is only a common sense to hold that those who have the privilege to be educated at the expense of the community should, as the outcome of it, be able to pay their debt to the community in the form of obligations and services.

Another fundamental duty of higher education is the co-operation among its institutions, both at the local and foreign levels in order to provide for research work that enriches knowledge in general and serves the development issues in particular.

7.2 *The Islamic culture and the role of Arab universities*

Arab society, being the hearth of sublime human civilization where the three heavenly religions Islam, Christianity and Judaism were revealed, is an assemblance of a large cultural heritage and abundant wealth of theoretical, humanistic and theological studies; the flag of which has been and still is carried by the oldest and most important minerals of human thought in the world which gave the greatest possible care to those studies: Al-Azhar University at Cairo, Al-Quirawan University at Tunisia and Al-Qara-ween University in Morocco.

Credit for deepening and evolving the Arabic culture in general and the Islamic culture in particular is up to those universities. In spite of the invasions which the Arab area has faced during the last ten centuries, those universities have not stopped their mission in preserving the Arabic/Islamic culture, enriching and developing it; a mission which have had its fruitful effect in the awakening of many of the surrounding nations.

Islam – the most widespread religion in that area – is in itself a large school for the humanistic studies. Islamic instructions, guidance and counsel have developed in the area, generation after generation, forming a wealthy intellectual background.

Later, Islamic universities have been established everywhere in the Arab area opening their entrants for Arab students as well as for quite a number of students from other Islamic countries all over the world. All those Islamic universities, old and new, play a distinguished and essential role in enriching the Arabic/Islamic culture and trends, deepening that culture in the conscience of youth, and disseminating it all over the world. Thus Arabic/Islamic ideologies and values are there in every corner in our modern world.

The Arabic/Islamic culture is not available as a field of study for all the students in other non-theological Arab universities. It is available only in some specialized departments and courses in some Arab universities. As the Arabic/Islamic culture has its constructive effect in building up man, in the realization of human solidarity and in the preservation of values and ideals which are considered as essential cornerstones in any valid and balanced development, Arab universities, in one of the symposiums held by their Association (Association of Arab Universities, AArU) took a resolution that Arabic/Islamic culture be a basic course in the curricula given to the different students in all Arab universities regardless of their specific fields of study.

Actually, to avoid fragmentation and confusion in the whole development process, and to ensure its conclusive, integral and balanced maintenance, efforts should not be oriented to economic aspects alone, but to the scientific, technical, moral and spiritual aspects also. The same perspective is also applicable if the concern is given to the moral values without enough consideration to applied sciences and productive arts. The realization of balanced development – within the framework of the NIEO requires concentrated and balanced care for both sides.

Within that course the old theological Al-Azhar University at Cairo accumulates under its wings today both the applied sciences such as Medicine, Engineering, Agriculture, Commerce and Theological Studies. In the meantime it has expanded this policy to its branches in the Egyptian provinces.

The importance of animating the Arabic/Islamic heritage in the Arab education system in general and in higher education in particular, besides its fundamental role in tying the succeding generations with their origins does not spring from any prejudices or self-conceit, but from the fact that this heritage, being a link between the Hellenic philosophy and the European culture, had the capacity to adopt that philosophy, argue whatever points of view it contained and transmit it to Europe in a new mould. There is no reason why it does not resume its role as an equal partner in world-wide cultural exchange.

Another element which would better control interaction between science and society, eliminate the effect of cultural alienation and ensure endogenous cultural values is *the question of Arabicization* especially of higher education.

Arab universities and other Arab institutions and organizations concerned have given, on both the local and regional levels, great care to this very particularly substantial matter on the basis that the adoption and development of the national language is closely linked with the preservation of national culture.

Arabicization of higher education is not considered a question of nationalism; neither it is only a signpost of very serious consequences in the march of Arab higher education development, but it is basically a question of destination in the life of the Arab nation. It is a choice between a person fed on a foreign language and consequently on a foreign way of thinking (and, thus, he continues his life depending mostly upon imported culture), and a citizen who has in his heart the common sense of belonging to, and self-esteem for, his national culture who also has the copacity to make a sound global contribution.

An achievement in that respect was the symposium on 'Arabicization of Arab university education' which was the main theme of the Association of Arab Universities (AAU) Fourth General Conference held in Riyad in 1979.

Attention to *the regional studies* presented in some higher institutes such as the Institute of African Studies and Research in Cairo University, the Middle-East Research Centre in Ein Shams University at Cairo, the Institute of African and Asian Studies in the University of Khartoum, the Gulf and Arabian Peninsula Studies in Kuwait University and in the University of Basrah, Palestinian Studies Research Centre in the University of Baghdad, Institute of Arabic Studies and Research in the Arab League etc., is undoubtedly enriching the environmental background and the endogenous culture.

The activities of those and other similar centres in the Arab area in carrying out research in the home cultural fields would also allow for a fuller appreciation of the socio-cultural factors in the implementation of plans for economic and social development. They also develop a spirit of responsibility and solidarity between them and similar centres all over the world on the basis of an international order ensuring the preservation and improvement of human environment.

Other essential perspectives in the course of Arab higher education development are the projects nowadays discussed and studied by some Arab regional organizations, mainly the Arab Educational, Cultural and Scientific Organization (ALECSO) and Association of Arab Universities (AArU). These are: the project of establishing a regional centre for higher education development and the project of human development.

Those two centres will certainly encourage and facilitate interuniversity and interArab area co-operation in the planning and conduct of mutually beneficial projects, for improvements and innovations in higher education and co-operate with other agencies whose objects are related to the objects of those centres.

Maintenance of human solidarity and building up the 'whole man' impose upon the Arab universities responsibility to forge unity and endogeneity by assuming an Arabic character, without becoming isolated from the main stream of civilization. Thus, higher education in the Arab area could contribute to the establishment of the NIEO. In this course Arab universities and other forms of higher education ought to:

1. Add the theological studies and Arabic culture and civilization to the curricula of all the Arab institutions of higher studies (including non-theological universities). Those studies should form a basic discipline for all the students whatever their fields of specialization may be.
2. Give more care to the process of building up the integral 'whole man' through giving more concern to the succeeding generation's behaviour and respect to human values, principles and ideals in the light of their responsibility towards perfection and high level performance.
3. Encourage in the youth the appreciation for human solidarity, develop and promote in them the bonds of kinship to the larger human society and the globality of its problems and originate in the depth of their conscience the importance of mutual co-operation to the realization of joint benefits and interests.

It is possible, then, to identify four main trends or currents in contemporary Arab higher education; all of which are within the framework of the NIEO: (a) religious trends; (b) endogenous trends; (c) individual attributes-modernization trends; and (d) revolutionary scientific trends.

8 Conclusion

The wide gap of dis-similarity between the developed countries in the North and the developing countries in the South is considered one of the most serious problems in our contemporary world. Arguments among philosophers, scholars and statespeople from all over the world, in local, regional and international organizations are focused on finding reliable practical solutions for that problem. All countries, regardless of their share in the development process, realize that we are living on one spaceship; its safety depends upon the equitable distribution of prosperity and justice among all inhabitants.

Arab countries look – through their international responsibility – to widening the circle of co-operation and collaboration between them and the developing countries in order to import the advanced productive arts and modern technology and adapt them to the local conditions and requirements. On the other hand, the Arab world possesses a large wealth of labour resources and is aware that developing their scientific and productive capacities and encouraging them to absorb the modern technology is the most important avenue for the realization of the economic and social development required by the attainment of international solidarity and stability.

The transmission of these advanced productive arts and the advanced technology to the Arab world is the responsibility of the institutions of higher education which are also entrusted with adapting them to local conditions and requirements, with encouraging succeeding generations to absorb them, and with contributing to their enrichment for the benefit and interest of the whole world.

Arab institutions of higher education are asked to co-operate for the realization of human solidarity in order to build up the 'whole person' who is the main objective of economic and social development as well as its essential media, its effective and constructive factor.

It is hoped that the collaboration between institutions of higher education all over the world will be an effective means for the construction of a more favourable world where prosperity, justice and peace could prevail.

As a corollary to the preceding and as far as this Arab world is concerned, this area, by virtue of its human and cultural values of civilization and its original spiritual principles will evolve – especially after being provided with the necessary subsistences – the patterns of co-operation and collaboration dedicated, on the international level, to humankind all over the world.

9 References

1 Including students enrolled in all types of higher studies and students registered for Masters and PhD degrees.

APPENDIX I
United Nations Declaration on the Establishment of a New International Economic Order

Resolution No. 3201 (S-VI) adopted by the Sixth Special Session of the United Nations General Assembly on 1 May 1974

The General Assembly
Adopts the following Declaration:

DECLARATION ON THE ESTABLISHMENT OF A NEW INTERNATIONAL ECONOMIC ORDER

We, the Members of the United Nations,

Having convened a special session of the General Assembly to study for the first time the problems of raw materials and development, devoted to the consideration of the most important economic problems facing the world community,

Bearing in mind the spirit, purposes and principles of the Charter of the United Nations to promote the economic advancement and social progress of all peoples.

Solemnly proclaim our united determination to work urgently for THE ESTABLISHMENT OF A NEW INTERNATIONAL ECONOMIC ORDER based on equity, sovereign equality, interdependence, common interest and co-operation among all States, irrespective of their economic and social systems which shall correct inequalities and redress existing injustices, make it possible to eliminate the widening gap between the developed and the developing countries and ensure steadily accelerating economic and social development and peace and justice for present and future generations, and, to that end, declare:

1 The greatest and most significant achievement during the last decades has been the independence from colonial and alien domination of a large number of peoples and nations which has enabled them to become members of the community of free peoples. Technological progress has also been made in all spheres of economic activities in the last three decades, thus providing a solid potential for improving the well-being of all peoples. However, the remaining vestiges of alien and colonial domination, foreign occupation, racial discrimination, *apartheid* and neo-colonialism in all its forms continue to be among the greatest obstacles to the full emancipation and progress of

the developing countries and all the peoples involved. The benefits of technological progress are not shared equitably by all members of the international community. The developing countries, which constitute 70 per cent of the world's population, account for only 30 per cent of the world's income. It has proved impossible to achieve an even and balanced development of the international community under the existing international economic order. The gap between the developed and the developing countries continues to widen in a system which was established at a time when most of the developing countries did not even exist as independent States and which perpetuates inequality.

2 The present international economic order is in direct conflict with current developments in international political and economic relations. Since 1970, the world economy has experienced a series of grave crises which have had severe repercussions, especially on the developing countries because of their generally greater vulnerability to external economic impulses. The developing world has become a powerful factor that makes its influence felt in all fields of international activity. These irreversible changes in the relationship of forces in the world necessitate the active, full and equal participation of the developing countries in the formulation and application of all decisions that concern the international community.

3 All these changes have thrust into prominence the reality of interdependence of all the members of the world community. Current events have brought into sharp focus the realization that the interests of the developed countries and those of the developing countries can no longer be isolated from each other, that there is a close interrelationship between the prosperity of the developed countries and the growth and development of the developing countries, and that the prosperity of the international community as a whole depends upon the prosperity of its constituent parts. International co-operation for development is the shared goal and common duty of all countries. Thus the political, economic and social well-being of present and future generations depends more than ever on co-operation between all the members of the international community on the basis of sovereign equality and the removal of the disequilibrium that exists between them.

4 The new international economic order should be founded on full respect for the following principles:

(*a*) Sovereign equality of States, self-determination of all peoples, inadmissibility of the acquisition of territories by force, territorial integrity and non-interference in the internal affairs of other States;

(*b*) The broadest co-operation of all the States members of the international community, based on equity, whereby the prevailing disparities in the world may be banished and prosperity secured for all;

(*c*) Full and effective participation on the basis of equality of all countries in the solving of world economic problems in the common interest of all countries, bearing in mind the necessity to ensure the accelerated development of all the developing countries, while devoting particular attention to the adoption of special measures in favour of the least developed, land-locked and island developing countries as well as those developing countries most seriously affected by economic crises and natural calamities, without losing sight of the interests of other developing countries;

(*d*) The right of every country to adopt the economic and social system that it deems the most appropriate for its own development and not to be subjected to discrimination of any kind as a result;

(*e*) Full permanent sovereignty of every State over its natural resources and all economic activities. In order to safeguard these resources, each State is entitled to exercise effective control over them and their exploitation with means suitable to its own situation, including the right to nationalization or transfer of ownership to its nationals, this right being an expression of the full permanent sovereignty of the State. No State may be subjected to economic, political or any other type of coercion to prevent the free and full exercise of this inalienable right;

(*f*) The right of all States, territories and peoples under foreign occupation, alien and colonial domination or *apartheid* to restitution and full compensation for the exploitation and depletion of, and damages to, the natural resources and all other resources of those States, territories and peoples;

(*g*) Regulation and supervision of the activities of transnational corporations by taking measures in the interest of the national economies of the countries where such transnational corporations operate on the basis of the full sovereignty of those countries;

(*h*) The right of the developing countries and the peoples of territories under colonial and racial domination and foreign occupation to achieve their liberation and to regain effective control over their natural resources and economic activities;

(*i*) The extending of assistance to developing countries, peoples and territories which are under colonial and alien domination, foreign occupation, racial discrimination or *apartheid* or are subjected to economic, political or any other type of coercive measures to obtain from them the subordination of the exercise of their sovereign rights and to secure from them advantages of any kind, and to neo-colonialism in all its forms, and which have established or are endeavouring to establish effective control over their natural resources and economic activities that have been or are still under foreign control;

(*j*) Just and equitable relationship between the prices of raw materials, primary commodities, manufactured and semi-manufactured goods exported by developing countries and the prices of raw materials, primary commodities, manufactures, capital goods and equipment imported by them with the aim of bringing about sustained improvement in their unsatisfactory terms of trade and the expansion of the world economy;

(*k*) Extension of active assistance to developing countries by the whole international community, free of any political or military conditions;

(*l*) Ensuring that one of the main aims of the reformed international monetary system shall be the promotion of the development of the developing countries and the adequate flow of real resources to them;

(*m*) Improving the competitiveness of natural materials facing competition from synthetic substitutes;

(*n*) Preferential and non-reciprocal treatment for developing countries, wherever feasible, in all fields of international economic co-operation whenever possible;

(*o*) Securing favourable conditions for the transfer of financial resources to developing countries;

(*p*) Giving to the developing countries access to the achievements of modern science and technology, and promoting the transfer of technology and the creation of indigenous technology for the benefit of the developing countries in forms and in accordance with procedures which are suited to their economies;

(*q*) The need for all States to put an end to the waste of natural resources, including food products;

(*r*) The need for developing countries to concentrate all their resources for the cause of development;

(*s*) The strengthening, through individual and collective actions, of mutual economic, trade, financial and technical co-operation among the developing countries, mainly on a preferential basis;

(*t*) Facilitating the role which producers' associations may play within the framework of international co-operation and, in pursuance of their aims, *inter alia* assisting in the promotion of sustained growth of the world economy and accelerating the development of developing countries.

5 The unanimous adoption of the International Development Strategy for the Second United Nations Development Decade* was an important step in the promotion of international economic co-operation on a just and equitable basis. The accelerated implementation of obligations and commitments assumed by the international community within the framework of the Strategy, particularly those concerning imperative development needs of developing countries, would contribute significantly to the fulfilment of the aims and objectives of the present Declaration.

6 The United Nations as a universal organization should be capable of dealing

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*Resolution 2626 (XXV).

with problems of international economic co-operation in a comprehensive manner and ensuring equally the interests of all countries. It must have an even greater role in the establishment of a new international economic order. The Charter of Economic Rights and Duties of States, for the preparation of which the present Declaration will provide an additional source of inspiration, will constitute a significant contribution in this respect. All the States Members of the United Nations are therefore called upon to exert maximum efforts with a view to securing the implementation of the present Declaration, which is one of the principal guarantees for the creation of better conditions for all peoples to reach a life worthy of human dignity.

7 The present Declaration on the Establishment of a New International Economic Order shall be one of the most important bases of economic relations between all peoples and all nations.

2229th plenary meeting
1 May 1974

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HIGHER EDUCATION AND THE NEW INTERNATIONAL ORDER

Edited by Bikas C. Sanyal

This book is a contribution from the International Institute for Educational Planning to Unesco's programme of activities aimed at the establishment of a New International Order. Coming from different continents of the world with different approaches and conceptual frameworks, the authors have put forward their own viewpoints on how the system of higher education in a country could contribute to the establishment of a New International Order. All the distinguished contributors have experience in both developing and developed countries and the conclusions they draw give new insight into the development of higher education in the different countries. The arguments that they put forward demonstrate the importance of the role that higher education has to play in bringing about new international order.

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Appendix 1 — UN Declaration on the Establishment of the New International Economic Order

A Selected Bibliography

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